

site's inclusion among the 1,800 Superfund sites across the country. A final study would determine whether there are other contaminants in the water, where the water is going from and how it's spreading.

"Based on that, we'll have to look at how we will remediate this," he said. That multi-year process could mean cleaning up the water, stopping the plume from spreading or a combination of both, he said.

Nathan Graber, director of the Center for Environmental Health said his department will continue to test residents' private wells and other local water systems.

His department will also conduct a study to examine PFOA levels in residents' blood, he said. And in response to concerns of increased rates of cancer, the department will delve deep into the state cancer registry to look at rates between 1995 to 2012, the most recent year the data is complete.

Numerous other questions were raised Thursday and speakers acknowledged the science is still developing. It's not clear whether the EPA's level is low enough.

"The EPA does not believe that skin contact with PFOA contaminated water is significant exposure," Enck said. But children or those with skin conditions, such as rashes, cuts and abrasions, should avoid long showers and baths.

"As the government agencies charged with protecting public health and the environment, it is imperative that DOH, the [DEC], and the EPA work together on a full investigation of the nature and extent of PFOA contamination and, then, on any necessary cleanup," Basil Seggos, acting DEC commissioner, wrote in a letter Thursday to Enck.

The DEC and DOH have asked the EPA to "expeditiously list PFOA as a hazardous substance."

"We write to you because this is not just a local issue," Seggos and DOH Commissioner Howard Zucker wrote in a letter to EPA Administrator Gina McCarthy. "The presence of PFOA in drinking water is an emerging nation-wide issue."

The letter refers to studies which suggest "the presence of PFOA in drinking water and groundwater may be more pervasive than originally thought and may subject people across the country to PFOA exposure."

"It's important that you stay informed and involved," Enck told attendees in her closing remarks. "Government needs to be transparent and responsive... [The EPA] will answer your questions, and quite frankly, we will tell you when we don't have the answers."

The EPA and Village websites have dedicated sections to the water issue with fact sheets, numbers residents should call to arrange private well testing and

other information: www.epa.gov/aboutepa/hoosick-falls-water-contamination and www.villageofhoosickfalls.com/water.

NY NEWS RELEASE

New York State Announces Progress to Address Contamination at Saint-Gobain Performance Plastics Site and in Village Water Supply

January 15, 2016

by RealEstateRama

Departments of Environmental Conservation and Health urge EPA to take steps to address water contamination and advance cleanup of the area

In response to public concern, DOH Conducting Cancer & Biomonitoring Study in Hoosick Falls

New York, NY – January 15, 2015 – (RealEstateRama) — The New York State Department of Environmental Conservation (DEC) and Department of Health (DOH) today called on the U.S. Environmental Protection Agency (EPA) to add the Saint-Gobain Performance Plastics Corporation McCaffrey Street Plant and other possible sources of contamination in Hoosick Falls to the National Priorities List (NPL) under the federal Superfund program and to undertake a full environmental investigation to address the sources of contamination. In addition, the state, Saint-Gobain Performance Plastics Corporation and the Village of Hoosick Falls (Village) are collaboratively working on an agreement to install water treatment systems to remove hazardous chemicals from the Village's water supply. View the state's letters to Regional EPA Administrator Judith Enck (PDF, 78 KB) and EPA Administrator Gina McCarthy (PDF, 55 KB).

Health Commissioner Dr. Howard Zucker said, "As soon as the Department of Health was notified of the contamination, we immediately began working with all parties in a collaborative manner to gather more data on the problem and work on solutions to reduce people's exposure to PFOA. I look forward to working with DEC, EPA and the Village of Hoosick Falls to address the sources of contamination."

Acting DEC Commissioner Basil Seggos said, "It is imperative that all levels of government work collaboratively to protect public health and the environment in situations such as this. DOH is working to develop a long-term solution for the Village's public water supply and we must ensure the extent of contamination is identified and cleaned up. I urge the EPA to take vigorous action on the federal level to regulate PFOA and quickly add this site to the National Priorities List so the resources of the federal Superfund program can be used to advance these next steps."

State Calls for National Priorities Listing & Urges Federal Action on PFOA

NPL listing permits EPA to use the resources of the federal Superfund to investigate and clean up hazardous substances. Listing also enables EPA to issue an order requiring a responsible party or parties to clean up the site if that becomes necessary. The source, or sources, of PFOA to the Village's public water system has not been confirmed. Through the federal Superfund program, all potential sources and responsible parties will be evaluated.

The state also called on the EPA to take stronger national actions to address Perfluorooctanoic acid (PFOA) contamination. In a letter to EPA Administrator Gina McCarthy (PDF, 55 KB), DEC and DOH requested that EPA lower its health advisory for PFOA in drinking water to take into account the most current scientific evidence and adopt a protective maximum contaminant level. This letter also called upon EPA to expeditiously list PFOA as a hazardous substance under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to facilitate the cleanup of contaminated groundwater and other media. Further, the letter asks EPA to review the remaining uses of PFOA under the Toxic Substance Control Act and curtail them whenever less toxic alternatives are available.

DOH Continues to Monitor Water to Ensure Public Health Safety

PFOA was detected in the Village's public drinking water in 2014. Although the use of PFOA is being phased out, it is still used to make household and commercial products that resist heat, and repel oil, stains, grease, and water. This includes nonstick cookware, surface coatings for stain-resistant carpets and fabric, and paper and cardboard food packaging. Studies of people have associated exposure to PFOA with an increased risk for several health effects. This includes associations with effects on the liver, immune system, thyroid gland, cholesterol levels, blood pressure during pregnancy, and kidney and testicular cancer.

After PFOA was detected in the water supply, DOH worked closely with the Village to provide technical advice and assistance for water sampling and to evaluate water treatment options to eliminate health risks. Because the levels of PFOA in public water were higher than the EPA health advisory level, DOH determined that people should reduce their exposure by avoiding the use of tap water for drinking and cooking. In addition, DOH continues to monitor private wells and will have more results very soon.

State Undertakes Cancer Registry & Biomonitoring Studies

In response to public concern, DOH has also begun an investigation of the incidence of cancer among Village residents, using data from the DOH Cancer Registry. The agency will also offer a PFOA biomonitoring study for residents of the Hoosick Falls area. This study will measure PFOA in blood to provide information on exposure. Detailed information about the project will be shared with area residents prior to the start of the project.

DOH will continue to provide technical advice and assistance to the Village, to

protect the health of the affected residents. The agency has been testing water samples since first notified of the contamination, and will continue to test private wells.

Contact

Press Office – Sean Mahar

625 Broadway

Albany, NY 12233

518-402-8000

- See more at: <http://newyork.realestaterama.com/2016/01/15/new-york-state-announces-progress-to-address-contamination-at-saint-gobain-performance-plastics-site-and-in-village-water-supply-ID03989.html#sthash.Bdk0sKMX.dpuf>

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<hoosickmccarthy2016.pdf>

From: Hannon, Arnita
Location: Conference Code/ Ex. 6
Importance: Normal
Subject: FW: Teleconference Briefing: PFOS/PFOA: Township of Oscoda Local Officials
Start Date/Time: Thur 6/16/2016 6:30:00 PM
End Date/Time: Thur 6/16/2016 7:00:00 PM

-----Original Appointment-----

From: Hannon, Arnita
Sent: Thursday, June 09, 2016 6:21 PM
To: Hannon, Arnita; Flaherty, Colleen; Strong, Jamie; Matthews, Demond; Archibald, Ingrid; Beckmann, Ronna Erin; Deamer, Eileen; Ann Richards; 'Bennett, Jacob'
Cc: Davis, CatherineM; Rupp, Mark; Bowles, Jack; Burneson, Eric; 'Bob Stalker'; Bair, Rita; Harris, Kimberly; Poy, Thomas
Subject: Teleconference Briefing: PFOS/PFOA: Township of Oscoda Local Officials
When: Thursday, June 16, 2016 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: 866.299.3188/Code Conference Code/ Ex. 6

This is RESCHEDULED from today. So sorry we were not able to complete today's call and deeply appreciate everyone's patience and flexibility. Hope everyone can join us on Thursday. Thank you!

Representing the Charter Township of Oscoda: Robert Stalker, Superintendent; Ann Richards, Community Development Coordinator

Conference Call Briefing: PFOS/PFOA

Request: From Congressman Dan Kildee on behalf of the Charter Township of Oscoda, MI

Interest: Local officials are interested in how EPA determined the 70 ppb Health Advisory. EPA staff will discuss the health studies and analysis used to derive the PFOA/PFOS Health Advisory.

Background: According to the Congressman's District office staff, it appears that the town's worst site is a little below the 70 ppb level and local officials are interested in how this level was set. There are indications from old water in fire hydrants that the levels were much higher in the past and only recently started looking for PFCs.

Representing the Township of Oscoda: List will be made available once I receive it.

EPA Staff: Colleen Flaherty, Biologist; Jamie Strong, Branch Chief, OW/OST; Region V

Robert Stalker, Superintendent

Ann Richards, Community Development Coordinator

From: Shoven, Heather

Required Attendees: Clark, Jacqueline; Davies, Lynne; Collins, Charlie; Johnson, KarenD; Reinhart, Roger; Duchovnay, Andrew; Burneson, Eric; Huff, Lisa; Wehling, Carrie; Messier, Dawn; Parikh, Pooja; Jamieson, Cheryl; Field, Stephen; Peaceman, Karen; R5WD-ConfCallLine-D/Conference-Call-Line/R5-WATER; rogers, rick; Strong, Jamie; Donohue, Joyce

Optional Attendees: ~~Rehl, Betsy~~

Location:

Conference Code/ Ex. 6

Importance:

Subject: DuPont/Chemours Team meeting

Start Date/Time: Thur 5/19/2016 1:00:00 PM

End Date/Time: Thur 5/19/2016 2:00:00 PM

2016 DuPont Order DRAFT May 2016 v5.docx

Conference Code/ Ex. 6

Team - please see the attached revised order on consent that incorporates comments from OST, OGC, the technical team members and legal team members. We'll discuss tomorrow during our team meeting. Thanks-Jacquie

Jacqueline Clark

From: Strong, Jamie
Required Attendees: Donohue, Joyce; Behl, Betsy
Location: DCRoomWest5231M/DC-CCW-OST
Importance: Normal
Subject: Finalize response to comments PFCsd
Start Date/Time: Thur 5/12/2016 3:00:00 PM
End Date/Time: Thur 5/12/2016 4:00:00 PM
Response to PFOA PFOS Peer Review Comments 05 09 2016 cleanJMD.DOCX

Joyce,
Please move your Reg Det meeting, we have to resolve these issues and get this document finalized.

From: Personal Address / Ex. 6

Required Attendees: Southerland, Elizabeth; Behl, Betsy; Flaherty, Colleen; Strong, Jamie; Donohue, Joyce; Grevatt, Peter; Clark, Becki; Burneson, Eric; Henry, Tala; Cleland-Hamnett, Wendy; Conerly, Octavia; Miller, Gregory; Etzel, Ruth; Scozzafava, MichaelE; Cooke, Maryt; Vaught, Laura; Gilinsky, Ellen; Fritz, Matthew; Klasen, Matthew; Burke, Thomas; Thomas, Russell; Wambaugh, John; Slotkin, Ron; Rodgers, Ryan; Carter, Donnell; Sampson, Jamaal; Vitalien, Christal; EPAVTC; McClain, Mike; Meiburg, Stan; Purchia, Liz; Nancy Grantham (Grantham.Nancy@epa.gov); Distefano, Nichole; Rupp, Mark; Beauvais, Joel; Stanislaus, Mathy; Barry Breen (Breen.Barry@epa.gov); Rennert, Kevin; Deener, Kathleen; Flowers, Lynn; Loop, Travis; Giles-AA, Cynthia; Pollins, Mark; Lee, Monica; Melissa Harrison (Harrison.Melissa@epa.gov)

Location: Alm Conference Room

Importance: Normal

Subject: Meeting Re: Health Advisories for Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA)

Start Date/Time: Wed 3/23/2016 5:30:00 PM

End Date/Time: Wed 3/23/2016 6:30:00 PM

Appendix D OW DW HEALTH ADVISORIES PFOA PFOS 02 09 16.docx

******Please DO NOT forward this calendar invitation. You may “Accept” or “Decline” the invitation but DO NOT respond with questions or concerns. If you do have any questions or concerns about this invitation please contact the Scheduling Office at scheduling@epa.gov . ******

SCt: Liel Azoolin

Ct: Crystal Penman, 202-564-3318

Staff:

Deputy Meiburg, Matt Fritz (OA)

Liz Purchia, Nancy Grantham, Melissa Harrison, Monica Lee (OPA)

Nichole Distefano, Mark Rupp (OCIR)

Joel Beauvais, Ellen Gilinsky, Elizabeth Southerland, Betsy Behl, Colleen Flaherty, Jamie Strong, Joyce Donohue, Peter Grevatt, Becki Clark, Eric Burneson, Travis Loop (OW)

Tom Burke, Russell Thomas, John Wambaugh, Kathleen Deener, Lynn Flowers (ORD)

Mathy Stanislaus, Barry Breen (OLEM)

Laura Vaught, Kevin Rennert (OP)

Cynthia Giles, Mark Pollins (OECA)

Optional:

Octavia Conerly (OW)

Ruth Etzel, Greg Miller (OCHP)

Michael Scozzafava, Mary Cooke (OLEM)

Tala Henry, Wendy Cleland-Hamnett (OCSPP)

Conference Code/ Ex. 6

From: Behl, Betsy

Required Attendees: acalafat@cdc.gov; are8@cdc.gov; Strong, Jamie; Donohue, Joyce

Location: Betsy Behl Office

Importance: Normal

Subject: CDC briefing on PFC health advisory: d

Conference Code/ Ex. 6

Start Date/Time: Mon 2/22/2016 3:00:00 PM

End Date/Time: Mon 2/22/2016 4:00:00 PM

FINAL CDC PFOA-PFOS-OW HAs 02 22 2016.ppt

From: Strong, Jamie
Required Attendees: Donohue, Joyce; Hackett, Edward
Optional Attendees: Flaherty, Colleen; Behl, Betsy
Location: DCRoomWest5231L/DC-CCW-OST
Importance: Normal
Subject: Discuss PFOA and PFOS internal agency review comments
Start Date/Time: Tue 2/2/2016 2:00:00 PM
End Date/Time: Tue 2/2/2016 3:00:00 PM
[final OCHP Comments on HESD-PFOA 1 29 16.docx](#)
[NHEERL comments for health effects documnet for PFOA 1-24.docx](#)
[PFC Comments 2016 Erin Hines.docx](#)
[PFOA Post External Review 010816 lgtg.docx](#)
[PFOA Post External Review 010816 OCHP edits.docx](#)
[PFOA NCEA comments Jan 2016 v2.docx](#)
[final OCHP Comments on HESD-PFOS 1 11 16.docx](#)
[HESD PFOS 121715 OCHP edits.docx](#)
[HESD PFOS 121715 lgtg.docx](#)
[OSWER PFOS COMMENTS.pdf](#)
[NCEA comments PFOS OW Jan 2015.docx](#)
[NCEA comments PFOS OW Jan 2015 suppl.docx](#)

Deliberative Process / Ex. 5

Here are the comments I have to date. I believe this is all of them.

Jamie

PFOA-

PFOS-

Strong, Jamie

From: Behl, Betsy
 Sent: Tuesday, January 26, 2016 1:00 PM
 To: Raffaele, Kathleen; Foster, Stiven
 Cc: Scozzafava, MichaelE; Strong, Jamie; Flaherty, Coll een
 Subject: RE: PFOS HESD for internal review

Thanks Kathy and Stiven

From: Raffaele, Kathleen
 Sent: Tuesday, January 26, 2016 11:57 AM
 To: Behl, Betsy <Behl.Betsy@epa.gov>; Foster, Stiven <Foster.Stiven@epa.gov>
 Cc: Scozzafava, MichaelE <Scozzafava.MichaelE@epa.gov>
 Subject: RE: PFOS HESD for internal review

Betsy,

I apologize that we haven't already gotten back to you. Stiven and I touched base about this this morning, and it is my understanding that we didn't identify anything in the PFOS document that we would want to bring up at this time. We support OW continuing to move this forward at this time.

Stiven please jump in if you had a different understanding.

Thanks for giving us a few extra days,

Kathleen

Kathleen Raffaele, Ph.D.

Senior Science Advisor
 Policy Analysis and Regulatory Management Staff
 Office of Land and Emergency Management (OLEM)
 U.S. EPA

Telephone (202) 566-0301

Mailcode 5103T

From: Behl, Betsy
 Sent: Tuesday, January 26, 2016 11:27 AM
 To: Foster, Stiven <Foster.Stiven@epa.gov>; Raffaele, Kathleen <raffaele.kathleen@epa.gov>
 Cc: Scozzafava, MichaelE <Scozzafava.MichaelE@epa.gov>
 Subject: RE: PFOS HESD for internal review

Stiven and Kathy, when can we expect your comments?

Betsy

From: Foster, Stiven
 Sent: Wednesday, January 13, 2016 1:44 PM
 To: Behl, Betsy <Behl.Betsy@epa.gov>
 Cc: Raffaele, Kathleen <raffaele.kathleen@epa.gov>; Strong, Jamie <Strong.Jamie@epa.gov>
 Subject: FW: PFOS HESD for internal review

Hi Betsy,

Kathleen Raffaele and I just received this document from Mike Scozzafava. We will not be able to provide comments this week, but would like a chance to look at it. Would it be possible to have until next Friday (1/22) to provide comments?

Would you please make sure that any future coordination with OLEM includes a copy to both Kathleen and myself?

Thanks,

Stiven Foster
 OLEM Policy Analysis and Regulatory Management Staff
 (202) 566-1911

From: Scozzafava, MichaelE
 Sent: Wednesday, January 13, 2016 1:22 PM
 To: Raffaele, Kathleen <raffaele.kathleen@epa.gov>; Foster, Stiven <Foster.Stiven@epa.gov>
 Subject: FW: PFOS HESD for internal review

From: Gaines, Linda
 Sent: Wednesday, January 13, 2016 11:49 AM
 To: Scozzafava, MichaelE <Scozzafava.MichaelE@epa.gov>; Burgess, Michele <Burgess.Michele@epa.gov>; Kirk, Andrea <Kirk.Andrea@epa.gov>
 Subject: RE: PFOS HESD for internal review

I finally finished the PFOS document. I will review PFOA next. I don't have scientific comments, other than to say this is a really good, thorough document. I do have some comments and a few edits that are attached. They are mostly related to typos and other editorial issues.

Linda G.T. Gaines, Ph.D., P.E.
 Environmental Health Scientist
 U.S. Environmental Protection Agency
 OLEM/OSRTI/ARD/Science Policy Branch
Gaines.Linda@epa.gov
 Phone: (703) 603-7189

From: Scozzafava, MichaelE
 Sent: Friday, January 08, 2016 11:57 AM
 To: Burgess, Michele <Burgess.Michele@epa.gov>; Kirk, Andrea <Kirk.Andrea@epa.gov>; Gaines, Linda <Gaines.Linda@epa.gov>
 Subject: FW: PFOS HESD for internal review
 Importance: High

From: Behl, Betsy
 Sent: Friday, January 08, 2016 11:54 AM
 To: Scozzafava, MichaelE <Scozzafava.MichaelE@epa.gov>
 Cc: Strong, Jamie <Strong.Jamie@epa.gov>
 Subject: FW: PFOS HESD for internal review
 Importance: High

Mike, this is the PFOS HESD for review. Please let me know if you would like to provide comments. We will include you in the review train for the HAs (anticipated to be in late January or early February).

Betsy

From: Behl, Betsy
 Sent: Thursday, December 17, 2015 1:23 PM
 To: Cantilli, Robert <cantilli.robert@epa.gov>; Fegley, Robert <Fegley.Robert@epa.gov>; Foos, Brenda <Foos.Brenda@epa.gov>; Cooke, Maryt <Cooke.Maryt@epa.gov>; 'Focazio, Michael' <mfocazio@usgs.gov>; Henry, Tala <Henry.Tala@epa.gov>
 Cc: Thomas, Russell <Thomas.Russell@epa.gov>; Burneson, Eric <Burneson.Eric@epa.gov>
 Subject: PFOS HESD for internal review
 Importance: High

Attached above is the PFOS Health Effects Support Document (HESD) for your review. The document has been spell checked but has not been through a final technical edit. We plan to address your comments and have then have a final technical edit done prior to the issuance of the Health Advisories (HAs).

In addition to OW scientists, we have listed John Wambaugh as an author on the document as he conducted the PBPK modeling. We greatly appreciate his contribution to this document. We are also attaching the external peer review comments, for your information.

There is much interest in the final HAs as well as pressure on EPA to finalize and release these documents. This HESD provides the key science support for the point of departure for PFOS that will be used in the HA calculation. OW would like to release the HAs in February, which is coming up fast. This is our plan for internal review of all the PFC documents:

- PFOS HESD: begins internal review 12/17/2015. Comments due 1/11/2016 (current document)
- PFOA HESD: begins internal review early January. Comments due 3 weeks later
- PFOA and PFOS HAs: begins internal review late January. Comments due 2 weeks later.

Many thanks in advance for your comments, Betsy

Elizabeth (Betsy) Behl, Director
 Health and Ecological Criteria Division, 4304-T
 Office of Science and Technology, Office of Water
 United States Environmental Protection Agency
 1200 Pennsylvania Avenue, NW
 Washington DC 20460

phone: 202.566.0788
 room 5233H

From: Southerland, Elizabeth

Required Attendees: OST-EVERYONE

Optional Attendees: Conerly, Octavia; Sengco, Mario; Hoffman, Wendy; Barash, Shari; Nappier, Sharon; Strong, Jamie; Goodwin, Janet; Swietlik, William; Crawford, Tiffany; Zipf, Lynn; Alers-Garcia, Janice; Cruz, Luis; Keating, Jim; Elias, Mike; Martin, Jeanette; Vican, Manjali; Goss, Heather; Behl, Betsy; Milam, Karen; Shriner, Paul; Niesen, Meghann; McLaughlin, Julianne; Fleisig, Erica; Lalley, Cara; Davis, Ifeyinwa; Christensen, Christina; Russo, Gary; Wilcut, Lars; Eignor, Diana; Kueberuwa, Steven; Ravenscroft, John; Leutner, Fred; Martinez, Menchu; Bigler, Jeff; Faison, Brendlyn; Beaman, Joe; Akhter, Shamima; Allen, Ashley; Ohanian, Edward; Oliver, Jacques; Matuszko, Jan; Biddle, Lisa; Ortiz, Agnes; McDonald, Ambria; Bone, Tracy; Koenig, Adriane; Wood, Robert; Gardner, Thomas; Evans, Crystal; Harper, Ashley; Jarvis, Amanda; Justice, JamesR; Soo-Hoo, Mimi; VanGilder, Noah

Location: HQ-Room-WJCE-1153

Importance: Normal

Subject: OST All Hands Meeting

Start Date/Time: Thur 10/22/2015 6:00:00 PM

End Date/Time: Thur 10/22/2015 8:00:00 PM

OST All hands Meeting for October 22 -10-22-15.pptx

The presentation for the meeting is now attached. Hard copies will not be provided at the meeting.

Conference Code/ Ex. 6

An agenda will be distributed prior to the meeting.

From: Flaherty, Colleen
Required Attendees: Betsy Behl; Ramasamy, Santhini; Donohue, Joyce
Location: betsy's office
Importance: Normal
Subject: discuss rounding
Start Date/Time: Tue 1/27/2015 5:00:00 PM
End Date/Time: Tue 1/27/2015 5:30:00 PM

Discuss email below from Steve Via:

 I'm trying to make sure I understand how health advisories are used in practice and in particular in the context of past and ongoing practice regarding compliance with MCLs. The specific question I am responding to is regarding rounding of observed values from monitoring. Current practice for rounding under SDWA with respect to compliance monitoring is the same as what we all learned in high school (5 or greater and the preceding digit rolls up and less than 5 does not change the preceding digit). Just to check I dug out the Arsenic Rule guidance, most recent instance when this issue came to the fore, and specific agency guidance on rounding, which actually dates back to the interim standards released immediately after SDWA first passed.

Is there a basis to use a different rounding strategy with respect to the health advisories, provisional health advisories, or benchmarks for human health concern? Advisories are getting more emphasis of late, so significant digits and rounding for these are actually becoming topics of dispute. I also imagine that these issues will re-emerge in the context of this Spring's cyanotoxin HAs.

If you have a chance to talk through this issue it would be great. I thought I would touch base with you before also raising the issue with OGWDW.

Background

OST Description of Health Advisories (2012)

"Health Advisory. An estimate of acceptable drinking water levels for a chemical substance based on health effects information; an HA is not a legally enforceable Federal standard, but serves as technical guidance to assist Federal, State, and local officials." (<http://water.epa.gov/action/advisories/drinking/upload/> (<http://water.epa.gov/action/advisories/drinking/upload/dwstandards2012.pdf>)

OPPT Description of Provisional Health Advisories for PFOA and PFOS (?)

"They reflect reasonable, health-based hazard concentrations above which action should be taken to reduce exposure to these contaminants in drinking water. The PHA values are 0.4 µg/L for PFOA and 0.2 µg/L for PFOS. These values may be used to assess contamination and exposure at other sites. Provisional Health Advisories are not to be construed as legally enforceable federal standards and are subject to change as new information becomes available." (<http://www.epa.gov>. (<http://www.epa.gov/oppt/pfoa/pubs/activities.html#ow>)

Arsenic MCL Clarification regarding Rounding (2005)

"For the purposes of compliance determinations, analytical results for arsenic will be reported to the nearest 0.001 mg/L (40 CFR 141.23(i)(4)). For purposes of

rounding, the last digit should be increased by one unit if the digit dropped is 5 or greater. If the digit dropped is 4 or less, do not alter the preceding number. For example, analytical results for arsenic of 0.0105 mg/L would round off to 0.011 mg/L, while a result of 0.0104 mg/L would round off to 0.010 mg/L.

([http://water.epa.gov/drink/info/arsenic/upload/2005_11_10_arsenic_ars_final - mainguide_9-13.pdf](http://water.epa.gov/drink/info/arsenic/upload/2005_11_10_arsenic_ars_final_-_mainguide_9-13.pdf))

Procedures for Rounding-Off Analytical Data to Determine Compliance with Maximum Contaminant Levels Present in NIPDWR (1981)

“Data reported to the State or EPA should be in a form containing the same number of significant digits as the MCL. In calculating data for compliance purposes, it is necessary to round-off by dropping the digits that are not significant. The last significant digit should be increased by one unit if the digit dropped is 5, 6, 7, 8 or 9. If the digit is 0, 1, 2, 3, or 4, do not alter the preceding number.”

(http://water.epa.gov/lawsregs/guidance/sdwa/upload/wsg_20.pdf)

Best regards,
Steve

Steve Via

Regulatory Affairs Manager
American Water Works Association
1300 Eye Street NW, Suite 701W
Washington, DC 20005-3314
Office 202.628-8303 | **Direct** 202.326.6130
svia@awwa.org | www.awwa.org

To: Donohue, Joyce[Donohue.Joyce@epa.gov]
From: Strong, Jamie
Sent: Thur 6/23/2016 3:25:40 PM
Subject: FW: Drinking Water Contaminants in NH
[EPA - Office of Water.pdf](#)
[ATT00001.htm](#)

FYI

From: Southerland, Elizabeth
Sent: Thursday, June 23, 2016 11:22 AM
To: Behl, Betsy <Behl.Betsy@epa.gov>; Flaherty, Colleen <Flaherty.Colleen@epa.gov>; Strong, Jamie <Strong.Jamie@epa.gov>
Subject: Fwd: Drinking Water Contaminants in NH

Sent from my iPhone

Begin forwarded message:

From: "Beauvais, Joel" <Beauvais.Joel@epa.gov>
Date: June 23, 2016 at 11:18:54 AM EDT
To: "Grevatt, Peter" <Grevatt.Peter@epa.gov>, "Southerland, Elizabeth" <Southerland.Elizabeth@epa.gov>
Subject: FW: Drinking Water Contaminants in NH

As expected

From: Beauchesne, Suzanne [<mailto:Suzanne.Beauchesne@des.nh.gov>] **On Behalf Of** Burack, Thomas
Sent: Thursday, June 23, 2016 10:00 AM
To: Beauvais, Joel <Beauvais.Joel@epa.gov>
Cc: Downing, Jane <Downing.Jane@epa.gov>; Freise, Clark <Clark.Freise@des.nh.gov>; Pillsbury, Sarah <Sarah.Pillsbury@des.nh.gov>; Eugene.Forbes@des.nh.gov; Burack, Thomas <Thomas.Burack@des.nh.gov>
Subject: Drinking Water Contaminants in NH

Dear Deputy Assistant Administrator Beauvais:

A hard copy of the attached letter is being sent this date via USPS.

Thomas S. Burack, Commissioner

NH Department of Environmental Services

29 Hazen Drive, PO Box 95

Concord, NH 03301

Phone: (603) 271-2958

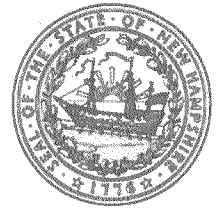
Fax: (603) 271-2867

Thomas.Burack@des.nh.gov

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The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

June 20, 2016

Sent Via Regular Mail and Email

Joel Beauvais, Deputy Assistant Administrator
U.S. Environmental Protection Agency
Office of Water, 4101M
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Deputy Assistant Administrator Beauvais:

As you are aware, perfluorinated compounds (PFCs) have been detected in private and public sources of drinking water in a number of communities in New Hampshire. In addition to detections of PFOA and PFOS at levels exceeding the newly established health advisory levels, other UCMR-listed PFCs, for which there are no health advisories, are also being detected. Of particular concern for New Hampshire citizens is the presence of PFHxS, which is reportedly the most persistent PFC in terms of bioaccumulation (U.S. EPA Long-Chain Perfluorinated Chemicals (PFCs) Action Plan of 12/30/2009). The New Hampshire Department of Environmental Services (NHDES) has been asked if detected levels of all the UCMR PFCs for which there are currently no health advisories should be included in the calculation to determine if water exceeds the new health advisory of 70 ppt for combined PFOA and PFOS.

The purpose of this letter is to request that EPA provide us with a written opinion as to whether it would be appropriate to include detected levels of the remaining UCMR-listed PFCs, including PFHxS, in making determinations regarding the safety of drinking water. We are also asking you to provide us with the current status of EPA's evaluation of the remaining PFCs on the UCMR list for which health advisories have not yet been issued. Have studies been completed or are studies in process to determine their health effects? Are future studies planned? It would also be very helpful to understand what guides EPA in determining if enough information exists relative to the environmental occurrence of a chemical and its potential health effects to support issuance of a health advisory.

We greatly appreciate your assistance on this matter. We look forward to our continued partnership in successfully addressing these emerging drinking water contaminants. Please do

Joel Beauvais, Deputy Assistant Administrator
U.S. Environmental Protection Agency
June 20, 2016
Page 2

not hesitate to contact Clark Freise (Clark.Freise@des.nh.gov, 603-271-8806), Assistant Commissioner, or me (Thomas.Burack@des.nh.gov, 603-271-2958), should you have any questions.

Sincerely,



Thomas S. Burack
Commissioner

cc: Clark Freise, Assistant Commissioner, NHDES
Sarah Pillsbury, Administrator, DWGB, NHDES
Eugene Forbes, Water Division Director, NHDES
Jane Downing, Drinking Water Branch Chief, EPA Region 1

To: Donohue, Joyce[Donohue.Joyce@epa.gov]
From: Strong, Jamie
Sent: Tue 6/21/2016 1:03:41 PM
Subject: FW: By mid-day tomorrow (Tues): Review paragraph in draft Navy letter on PFOA/PFOS
2016.06.07 PA Local Delegation Letter with Senators to Navy Re. Health S....pdf
16-06-17 Congressional Response to Meehan Fitzpatrick Boyle Casey Toomey- DASN(E) (5).docx

what do you think of this text?

From: Conerly, Octavia
Sent: Tuesday, June 21, 2016 6:52 AM
To: Flaherty, Colleen <Flaherty.Colleen@epa.gov>; Strong, Jamie <Strong.Jamie@epa.gov>; Behl, Betsy <Behl.Betsy@epa.gov>
Subject: FW: By mid-day tomorrow (Tues): Review paragraph in draft Navy letter on PFOA/PFOS

Good morning Everyone,

Has anyone had an opportunity to review the paragraph (see below) in this letter? OCIR needs our review ASAP. The original deadline was noon today but now they want it ASAP. Thanks in advance.

Deliberative Process / Ex. 5

Octavia Conerly

Special Assistant to the Office Director
Office of Science and Technology
1200 Pennsylvania Ave. NW MC 4304T
Room 5231H
Washington, DC 20460
EMAIL: conerly.octavia@epa.gov
PHONE: (202) 566-1094
FAX: (202) 566-0441

From: Conerly, Octavia
Sent: Monday, June 20, 2016 2:13 PM
To: Flaherty, Colleen <Flaherty.Colleen@epa.gov>; Jamie Strong <strong.jamie@epa.gov>; Behl, Betsy <behl.betsy@epa.gov>
Cc: Southerland, Elizabeth <Southerland.Elizabeth@epa.gov>
Subject: FW: By mid-day tomorrow (Tues): Review paragraph in draft Navy letter on PFOA/PFOS

Please review the attached draft response letter from the Navy. Please let me know if you have any concerns by 11am tomorrow morning. Thanks in advance.

Octavia Conerly
Special Assistant to the Office Director
Office of Science and Technology
1200 Pennsylvania Ave. NW MC 4304T
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Washington, DC 20460
EMAIL: conerly.octavia@epa.gov
PHONE: (202) 566-1094

FAX: (202) 566-0441

From: Klasen, Matthew
Sent: Monday, June 20, 2016 2:03 PM
To: Conerly, Octavia <Conerly.Octavia@epa.gov>
Cc: Greene, Ashley <Greene.Ashley@epa.gov>; Harris, Adrienne <Harris.Adrienne@epa.gov>; Orvin, Chris <Orvin.Chris@epa.gov>; Peck, Gregory <Peck.Gregory@epa.gov>
Subject: By mid-day tomorrow (Tues): Review paragraph in draft Navy letter on PFOA/PFOS

Hi Octavia,

Hope your Monday is going well, and hope I have not already exceeded my email quota for the day. (I'm filling in for Cathy, which is why you're getting more from me than usual.)

In response to a Congressional letter from PA folks on PFOA/PFOS, the Navy sent us the attached draft response to make sure the EPA-relevant discussion looked OK to us. I've highlighted in yellow the text that seems most relevant to our work -- summarizing the methodology behind the health advisories.

Can you and appropriate folks take a look at this and let me know if this text looks OK? **Mid-day tomorrow** would be great.

I don't think there are any issues here with OGWDW, but copying Ashley and Adrienne just in case.

Thanks! And let me know if you have any questions.

-Matt

Matt Klasen
U.S Environmental Protection Agency
Office of Congressional Affairs
WJC North 3443N
202-566-0780
cell (202) 505-0787

From: Kaiser, Sven-Erik

Sent: Monday, June 20, 2016 1:52 PM
To: Klasen, Matthew; Brown, Tristan; Levine, Carolyn
Subject: FW: Congressional inquiry on PFOS/PFOA

Matt- thanks for taking a look - I understand you are already working on it through Carolyn. Best,
Sven

Sven-Erik Kaiser
U.S. EPA
Office of Congressional and Intergovernmental Relations
1200 Pennsylvania Ave., NW (1305A)
Washington, DC 20460
202-566-2753

-----Original Message-----

From: Brown, Tristan
Sent: Monday, June 20, 2016 1:50 PM
To: Levine, Carolyn <Levine.Carolyn@epa.gov>; Kaiser, Sven-Erik <Kaiser.Sven-Erik@epa.gov>
Subject: FW: Congressional inquiry on PFOS/PFOA

Can you loop back with program folks to make sure we have no issues with this response?

Thanks

Tristan Brown
Deputy Associate Administrator for
Congressional Affairs
U.S. Environmental Protection Agency
Office: (202) 564-4113
Email: brown.tristan@epa.gov

To: Donohue, Joyce[Donohue.Joyce@epa.gov]; Moore, Susan
(ATSDR/DCHI/SSB)[sym8@cdc.gov]
From: Gaines, Linda
Sent: Thur 6/16/2016 6:54:11 PM
Subject: UCMR3 to blood PFAS levels study
[Hurley 2016.pdf](#)

In case you hadn't seen this, I thought you might find this interesting. Quick, small epidemiology study linking PFAS in water to serum levels.

Linda G.T. Gaines, Ph.D., P.E.
Environmental Health Scientist
U.S. Environmental Protection Agency
OLEM/OSRTI/ARD/Science Policy Branch
Gaines.Linda@epa.gov
Phone: (703) 603-7189

Preliminary Associations between the Detection of Perfluoroalkyl Acids (PFAAs) in Drinking Water and Serum Concentrations in a Sample of California Women

Susan Hurley,^{*,†} Erika Houtz,^{‡,§} Debbie Goldberg,[†] Miaomiao Wang,[‡] June-Soo Park,[‡] David O. Nelson,[†] Peggy Reynolds,^{†,||} Leslie Bernstein,[⊥] Hoda Anton-Culver,[#] Pamela Horn-Ross,[⊗] and Myrto Petreas[‡]

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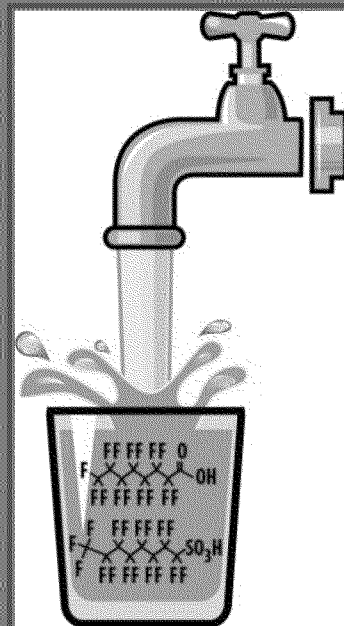
[⊥]Department of Population Sciences, Beckman Research Institute of the City of Hope, Duarte, California 91010, United States

[#]Department of Epidemiology, School of Medicine, University of California Irvine, Irvine, California 92697, United States

[⊗]Cancer Prevention Institute of California, 2201 Walnut Avenue, Suite 300, Fremont, California 94538, United States

* Supporting Information

This study compared detection of perfluoroalkyl acids (PFAAs) in public drinking water with PFAA serum concentrations for 1566 California women. PFAA occurrence in drinking water from U.S. EPA's third Unregulated Contaminant Monitoring Rule (UCMR3) database was linked by residential zip code to study participants. Detectable water concentrations of perfluorooctanoic acid (PFOA) ranged from 0.020 to 0.053 $\mu\text{g/L}$ and of perfluorooctanesulfonic acid (PFOS) from 0.041 to 0.156 $\mu\text{g/L}$. Forty percent of detectable concentrations exceeded the 2016 Health Advisory Level of 0.07 $\mu\text{g/L}$ for combined PFOA and PFOS concentrations. Serum concentrations of PFOS and PFOA significantly differed between participants with and without detectable measures of these compounds in water (Wilcoxon $P \leq 0.0007$). Median serum concentrations of PFOS and PFOA were 29% and 38% higher, respectively, among those with detectable levels in water compared to those without detectable levels. Validation of this approach and replication of these results in other study populations are warranted.



INTRODUCTION

Perfluoroalkyl acids (PFAAs) are a subset of the poly- and perfluoroalkyl substances (PFASs), a class of compounds that have been widely used for over 60 years to impart nonstick, waterproof and stain-resistant coatings to a variety of consumer products, including cookware, food packaging, clothing, carpeting, and textiles.^{1–3} PFASs are also active ingredients in aqueous film forming foams (AFFF) used to extinguish hydrocarbon-based fuel fires at airports, oil refineries, military bases, and firefighter training facilities.⁴ PFAAs are highly resistant to biodegradation and are among the most persistent of environmental pollutants.^{1,3,5} A growing body of scientific evidence for the two most studied members of PFASs, perfluorooctanesulfonic acid (PFOS) and

perfluorooctanoic acid (PFOA), suggests potentially toxic effects including tumor induction, hepatotoxicity, developmental toxicity, immunotoxicity, endocrine disruption, and neurotoxicity.^{2,3,6–13} Consequently, PFASs, especially PFOS and PFOA, have become the focus of considerable public health concern.

Although U.S. and California biomonitoring data indicate widespread human exposures,^{14–16} routes of exposure have not been fully elucidated.^{3,17–20} Drinking water can be a significant

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Table 1. PFAA Concentrations Detected in Drinking Water (as reported by UCMR3 Data) Linked to Study Participants' Residences

PFAA contaminant	CAS registry number	minimum reporting level ($\mu\text{g/L}$)	PFAA concentration ($\mu\text{g/L}$)		
			no. ^a	mean	min. – max.
perfluorooctanesulfonic acid (PFOS)	1763–23–1	0.04	52	0.058	0.041–0.156
perfluorooctanoic acid (PFOA)	335–67–1	0.02	31	0.028	0.020–0.053
perfluorohexanesulfonic acid (PFHxS)	355–46–4	0.03	12	0.064	0.032–0.120
perfluoroheptanoic acid (PFHpA)	375–85–9	0.01	7	0.015	0.010–0.022
perfluorononanoic acid (PFNA)	375–95–1	0.02	0		
perfluorobutanesulfonic acid (PFBS)	375–73–5	0.09	0		

^aNo. = Number of water samples in which PFAA concentration \geq minimum reporting level (MRL) of UCMR3 data among public water systems (PWS) that serviced a residential zip code of study participants.

route of exposure among populations whose water has known "significant environmental contamination",^{21–27} but it is unclear whether drinking water may serve as an important route of exposure among the general population. The use of AFFF at airports and military bases and the land application of biosolids have both been observed to contaminate surrounding groundwater and surface water with PFAS^{28–31} and may contribute to PFAS levels in drinking water sources far from PFAS manufacturers.

The U.S. Environmental Protection Agency (U.S. EPA), under its third Revisions to the Unregulated Contaminant Monitoring Rule (UCMR3) for Public Water Systems began testing public water supplies in 2013 for six PFAAs.³² These data are collected to provide scientifically valid information on the occurrence of unregulated chemicals that are of potential public health concern and are used by the U.S. EPA to inform regulatory decisions. The UCMR3 now offers the most comprehensive population-based data set of PFAA occurrence in drinking water. The current analysis compares biomonitoring data on PFAAs in a sample of California women with UCMR3-derived PFAA drinking water detections. To our knowledge, this is the first study to link PFAA biomonitoring data for the general population to PFAA detections in U.S. public water supplies.

MATERIALS AND METHODS

Study Population. The study population was composed of 1566 women residing in California who are participants in the California Teachers Study (CTS), an ongoing cohort study of over 133 000 female professional public school employees.³³ These women provided a blood sample as part of their participation in a breast cancer case-control study nested within the CTS. The characteristics of the study population reflect that of the larger CTS study from which it was drawn. As shown in the Supporting Information (Table S1), the study population was predominantly composed of non-Hispanic white (77%) and middle-aged or older women, with nearly 70% between the ages of 60–79 years. Approximately 40% had been diagnosed with breast cancer prior to blood collection.

Serum Collection. Blood samples were collected from participants by licensed phlebotomists from January 2011 to September 2013. Addresses at blood draw were confirmed with participants by the phlebotomists prior to blood collection. Blood samples were collected in Tiger Top (SST) tubes (10 mL BD collection tube catalog #367985), kept on cool packs, and within several hours were spun down using portable centrifuges to separate the serum. Processed samples were then frozen and transported to the laboratory where they remained frozen and stored at $-20\text{ }^{\circ}\text{C}$ until thawed for the PFAA analysis.

Serum PFAS Measurements. Serum measurements of 12 PFASs were conducted using an online SPE-HPLC-MS/MS

method as described in detail previously.³⁴ Briefly, 100 μL of serum was diluted in formic acid and spiked with isotopically labeled internal standards before injection into the online SPE-HPLC-MS/MS system (Symbiosis Pharma, IChrom Solutions, Plainsboro, NJ, and ABSciex 4000 QTrap mass spectrometer, ABSciex, Redwood City, CA) for cleanup and analysis. Native and isotopically labeled PFAS standards were purchased from Wellington Laboratories (Shawnee Mission, KS). Within each batch analysis of 20 samples, two in-house spiked calf serum samples and NIST 1958 Standard Reference Material were run in duplicate together with the other quality control samples.

The current study is restricted to the four PFAAs that were detected in California UCMR3 data: PFOS, PFOA, perfluorohexanesulfonic acid (PFHxS), and perfluoroheptanoic acid (PFHpA). Limits of detection (LOD) and detection frequency (DF) for each of the compounds were as follows: PFOS (LOD = 0.066 ng/mL; 99.87% DF); PFOA (LOD = 0.110 ng/mL; 99.87% DF); PFHxS (LOD = 0.021 ng/mL; 99.04% DF); PFHpA (LOD = 0.026 ng/mL; 74.8% DF).

PFAAs in UCMR3 Drinking Water. Proxy indicators for PFAAs in study participants' drinking water were derived by linking their residence at the time of blood draw to information on PFAA occurrence in the UCMR3 data. Drinking water samples included in UCMR3 were collected from all U.S. public water systems (PWSs) serving $\geq 10\,000$ people and 800 representative smaller PWSs between January 2013 and December 2015. Water samples were taken at the entry point to the distribution system. Minimum reporting levels ranged from 0.01 to 0.09 $\mu\text{g/L}$, depending on the analyte (Table 1). Further details of the UCMR3 data monitoring are available elsewhere.³⁵ In California, water was sampled from 452 PWSs. One or more PFAAs were detected in drinking water samples collected from 28 PWSs (6.2% detection rate). Because perfluorononanoic acid (PFNA) and perfluorobutanesulfonic acid (PFBS) were not detected in any PWSs in California, these compounds were not included in our analysis.

The UCMR3 occurrence data were downloaded from the EPA Web site³⁵ on April 12, 2016. For each chemical, the UCMR3 database contains a record for each water sample that includes the following information: whether the chemical was detected at or above its LOD, the concentration detected ($\mu\text{g/L}$), collection date, and identifiers for the PWS provider and facility. The UCMR3 data also contain information identifying the zip codes served by each large PWS (i.e., serving $\geq 10,000$ people). These data were cross classified by PWSs to create a file that summarized for each California zip code whether any PFAA had been detected at least once during the 3 year UCMR3 monitoring period. This file was then linked to our study participants based on the zip code of residence at the time of blood collection. Through this process, a proxy indicator for the occurrence of each

Table 2. PFAAs: Comparison of Serum Concentrations (ng/mL) among 1333 Study Participants with and without Detectable Levels in Drinking Water^a

PFAA compound detected in drinking water ^b			PFAA serum concentration (ng/mL) ^c						
	n ^a	% ^d	mean	geo. mean	median	percentile		max.	P ^e
						P ₂₅	P ₇₅		
PFHpA									
detected	35	2.2	0.12	0.07	0.07	0.03	0.14	0.95	0.36
not detected	1,298	82.9	0.09	0.06	0.05	0.03	0.11	1.61	
PFHxS									
detected	31	2.0	1.87	1.35	1.48	0.91	2.91	5.07	0.60
not detected	1,302	83.1	2.29	1.66	1.60	1.04	2.57	21.80	
PFOA									
detected	70	4.5	4.06	3.47	3.46	2.54	4.83	17.00	<0.0001
not detected	1,263	80.7	2.99	2.45	2.51	1.69	3.64	39.10	
PFOS									
detected	93	5.9	11.02	8.51	9.11	5.02	13.70	39.40	0.0007
not detected	1,240	79.2	8.42	6.76	7.08	4.45	10.60	99.80	

^aNumber of study participants excludes 233 participants whose residential zip code at blood draw was not included in the UCMR3 database.

^bDetected = the particular PFAA compound was detected in a public water system (PWS) that serves the zip code of residence at blood draw; not detected = the particular PFAA compound was not detected in a PWS that serves the zip code of residence at blood draw (as reported by UCMR3 Occurrence Data, 2013–2015). ^cgeo. mean = geometric mean; P₂₅ = 25th-percentile; P₇₅ = 75th-percentile; max = maximum. ^dPercentages are expressed as percent of total number of study participants, including those that did not link to the UCMR3 (n = 1,566) and therefore do not sum to 100%. ^eP = p-value calculated from Wilcoxon Rank Sum Test.

PFAA in the drinking water of study participants was created and defined as follows: “detected” indicating that the particular PFAA had been detected in at least one PWS that serves their residential zip code; “not detected” indicating that the particular PFAA had not been detected in any of the PWSs that serve their residential zip code; and “not tested” indicating that their residential zip code was not supplied by a PWS contained in the UCMR3 database.

Statistical Analysis. Prior to statistical analyses, serum samples with PFAA concentrations below the LOD were imputed as LOD/√2 for each analyte. Descriptive statistics, including mean values, median values, geometric mean values, and percentiles for the serum PFAA concentrations were calculated and are presented separately for those with and without detectable measures of each of the PFAAs in drinking water (Table 2). Wilcoxon Rank-Sum tests were performed to evaluate formally whether the distributions of serum concentrations differed in a statistically significant way between those with and without detectable levels of the given PFAA in drinking water. These analyses excluded the 233 participants whose residence was located in a zip code that was not included in the UCMR3 data.

RESULTS AND DISCUSSION

Of the 1566 participants in our study, 109 (7%) lived in a residence whose zip code was supplied by a PWS that had detected at least one PFAA in its water at least once during the UCMR3 monitoring period, 1224 participants (78%) linked to a zip code whose water was supplied by a PWS that had not detected any PFAA in its water, and the remaining 233 (15%) lived in a zip code whose water was not tested. The racial/ethnic characteristics and distribution of breast cancer cases and age were similar across the three categories of PFAA water detections (Table S1).

PFOS and PFOA were the PFAA compounds most frequently detected by the UCMR3 monitoring, found in the drinking water linked to 5.9% and 4.5% of participants, respectively. PFHpA and PFHxS were detected in the drinking water linked to about 2% of participants. The distributions of detectable PFAAs in the UCMR3 that linked to our study participants are

summarized in Table 1. The detectable levels of PFOA (mean = 0.028 µg/L; range = 0.020–0.053 µg/L) and PFOS (mean = 0.058 µg/L; range = 0.041–0.156 µg/L) were all below the previous U.S. EPA 2009 Provisional Health Advisory Levels of 0.4 µg/L and 0.2 µg/L, respectively. Under the newly issued 2016 Lifetime Health Advisory Level for PFOA and PFOS (individual or combined concentrations of 0.07 µg/L),³⁶ substantially more exceedances occurred, with 40% of the detectable concentrations exceeding the Advisory Level based on combined concentrations and 16% based on PFOS concentration alone. No samples exceeded the Advisory Level based on PFOA concentration alone. In contrast to the prior provisional US EPA Health Advisories which were intended to be protective for short-term exposures, the new Lifetime Health Advisory Level is designed to protect against chronic exposures. Seventy-one percent of our study participants had been residing in the same zip code for at least 15 years.

The distribution of serum concentrations of PFOS and PFOA significantly differed among study participants with and without detectable measures of PFOA (P < 0.0001) and PFOS (P = 0.0007) in drinking water (Table 2). Compared to those who linked to drinking water with no detectable PFOA, the median serum PFOA concentration was 38% higher in those that linked to water with detectable PFOA (3.46 ng/mL versus 2.51 ng/mL). For PFOS, the median serum concentration was 29% higher among those for whom it was detected in drinking water compared to those for whom it was not (9.11 ng/mL versus 7.08 ng/mL). In contrast, no statistically significant differences in the distributions of serum concentrations for PFHpA (P = 0.36) or PFHxS (P = 0.60) between study participants with and without detectable levels in drinking water were observed. When we repeated these analyses after removing the breast cancer cases, the results were similar (Supporting Information Table S2).

To our knowledge, this is the first study to demonstrate an association between serum PFAA levels and detection of PFAAs in drinking water supplies among a population with no previously recognized water contamination. These results, which suggest

that drinking water with relatively low levels of PFAAs may contribute to higher serum levels among exposed women, are consistent with human pharmacokinetic modeling. It has been previously established that, on average, ongoing exposure to PFOA in drinking water increases serum PFOA concentrations in a serum: drinking water ratio of 100:1 or greater,^{25,37} while based on half-lives and clearance factor differences, PFOS in drinking water is estimated to increase serum concentrations at a ratio of 172:1 or more.^{38–40} Therefore, assuming no other significant sources of exposure, at the mean drinking water concentration of 0.028 µg/L among those with detectable levels of PFOA in water, we would expect a mean serum level of 2.8 ng/mL, and at the mean drinking water concentration of 0.058 µg/L among those with detectable levels of PFOS in water, we would expect a mean serum PFOS level of 9.98 ng/mL. The mean serum levels in our participants with detectable measures of PFOA and PFOS in drinking water of 4.06 and 11.02 ng/mL, respectively, are marginally higher, but generally consistent with these predictions. Overall, the PFOA and PFOS data in this study suggest that drinking water can be an important source of human exposure to PFAAs.

This study has a number of limitations worth noting. Most importantly, because UCMR3 monitoring was designed to assess population exposures, not to assign exposures to individuals, it does not provide the data elements necessary to link definitively a contaminated water sample to a specific home. UCMR3 data are based on samples collected from multiple points of entry within a PWS; PFAA detection in one sample does not necessarily represent the PFAA occurrence in water throughout the entire PWS distribution system. Additionally, in the infrequent instance when a residence is located in a zip code that is serviced by more than one PWS it is not possible to definitively identify the PWS. Furthermore, the MRLs of the UCMR3 data are relatively high compared to the levels of detection available from many certified laboratories; thus it is likely that PFAAs were present in some samples but were not detected by the UCMR3 monitoring. Given these limitations of the UCMR3 data, our proxy measure for PFAAs in drinking water is likely to introduce some misclassification of exposure. Thus, the true difference in serum levels between those with and without PFAA exposures from drinking water is likely to be greater than what we observed in this study.

As issues related to drinking water contamination were not part of the original aims of the CTS, additional uncertainties in exposure were introduced by a lack of information about whether participants routinely drink their home tap water or consume water from private wells. Information about other potential sources of PFAA exposure, including diet, indoor dust, and occupational exposures,^{3,17–19,41} also was lacking. Occupational exposures, however, are unlikely to be important in our study population, and there is no reason to postulate that these other exposure sources would be correlated to detection of PFAAs in drinking water. Thus, although it is possible that our findings are spurious due to uncontrolled confounding, it seems unlikely.

It should also be noted that this study population was composed of CTS members who had participated in a nested breast cancer case-control study, and thus the selection of study participants was not designed to produce a representative sample of the California population. Nevertheless, results were similar among the subset of participants who served as controls in the breast cancer study and overall the PFAA serum concentrations in our study population were consistent with levels reported among adult women in recent U.S. biomonitoring data.¹⁵

Under its 2016 PFOA and PFOS Drinking Water Health Advisories, the U.S. EPA recommends that when PFOA and PFOS concentrations, individually or combined, are found to exceed 70 µg/L, water systems should “quickly undertake additional sampling to assess the level, scope and localized source of contamination to inform next steps.”³⁶ The UCMR3 data do not provide sufficient information to identify specific localized sources of PFAA contamination to drinking water supplies. California, like many states, however, has known PFAA contamination in groundwater⁴² and in waste water that discharges to surface water from the use of AFFF,⁴³ and this may contribute to PFAA contamination of drinking water supplies. Additional point sources could come from manufacturers who produce or use PFASs industrially. The UCMR3 data could help pinpoint geographic “hot spots”, offering a useful starting point to identify and remediate specific sources of exposure, as well as to target populations for future health evaluations (see California Map of UCMR3 data in Supporting Information, Figure S1).

There is evidence that many of the health end points of concern associated with some of the PFAAs may be elicited by levels in the range of serum PFAAs observed in our study population.^{8,25,44,45} Thus, the elevated serum PFAA concentrations found among our study participants who were potentially exposed to PFAAs in drinking water underscore the potential public health importance of these findings and the need for further study. Given the health implications of these results, validation of our approach and replication of these findings in other study populations with biomonitoring data should be a research priority.

ASSOCIATED CONTENT

* Supporting Information

The Supporting Information is available free of charge on the ACS Publications website at DOI: 10.1021/acs.estlett.6b00154.

Table S1. Demographic Characteristics and Detection of PFAAs in Drinking Water for Study Participants (n = 1566). Table S2. PFAAs: Serum Concentrations (ng/mL) among Subset of Study Population that were Controls (n = 944): Comparison of Serum Concentrations (ng/mL) between Study Participants with and without Detectable Levels in Drinking Water. Figure S1: Zip codes in California serviced by a public water system (PWS) with detectable levels of PFAAs (PDF).

AUTHOR INFORMATION

Corresponding Author

*Susan Hurley. Email: Susan.Hurley@cpic.org. Office phone: (510) 608-5189. Fax: (510) 608-5095.

Notes

The authors declare no competing financial interest.

ACKNOWLEDGMENTS

This research was supported, in part, by funds provided by The Regents of the University of California, California Breast Cancer Research Program, Grant Number 16ZB-8501 and National Cancer Institute, Grant R01 CA77398. The opinions, findings, and conclusions herein are those of the authors and do not necessarily represent those of the California Department of Toxic Substances Control, The Regents of the University of California, or any of its programs. We express our appreciation to all the participants in the California Teachers Study and to the researchers, analysts and staff who have contributed so much for

the success of this research project. We also thank Christine Duffy for overseeing field data and biospecimen collection, Martin Snider, Suhash Harwani, Wendy Duong for analytic support, Linnah Marlow for creating the Table of Contents original graphic, Andrew Hertz for cartography and geocoding support, and the California Teachers Study Steering Committee members who are responsible for the formation and maintenance of the cohort within which this study was conducted but who did not directly contribute to the current paper: Jessica Claguede-Hart, Christina A. Clarke, Dennis Deapen, James V. Lacey Jr., Yani Lu, Huiyan Ma, Susan L. Neuhausen, Hannah Park, Rich Pinder, Fredrick Schumacher, Sophia S. Wang, and Argyrios Ziogas.

REFERENCES

- (1) Draft Toxicological Profile for Perfluoroalkyls 2015; U.S. Department of Health and Human Services Public Health Service Agency for Toxic Substances and Disease Registry (ATSDR): Atlanta, GA, 2015.
- (2) Lau, C. Perfluorinated compounds. *EXS* 2012, 101, 47–86.
- (3) Lindstrom, A. B.; Strynar, M. J.; Libelo, E. L. Polyfluorinated compounds: past, present, and future. *Environ. Sci. Technol.* 2011, 45, 7954–7961.
- (4) Moody, C. A.; Field, J. A. Perfluorinated surfactants and the environmental implications of their use in fire-fighting foams. *Environ. Sci. Technol.* 2000, 34, 3864–3870.
- (5) Simon, J. A. Editor's Perspective: Perfluorinated Chemicals Continue Gaining Momentum as an Emerging Contaminant. *Remediation Journal* 2014, 25, 1–9.
- (6) C8 Science Panel Probable Links Reports. http://www.c8sciencepanel.org/prob_link.html (accessed February 2016).
- (7) Corsini, E.; Luebke, R. W.; Germolec, D. R.; DeWitt, J. C. Perfluorinated compounds: emerging POPs with potential immunotoxicity. *Toxicol. Lett.* 2014, 230, 263–270.
- (8) DeWitt, J. C.; Peden-Adams, M. M.; Keller, J. M.; Germolec, D. R. Immunotoxicity of perfluorinated compounds: recent developments. *Toxicol. Pathol.* 2012, 40, 300–311.
- (9) Domingo, J. L. Health risks of dietary exposure to perfluorinated compounds. *Environ. Int.* 2012, 40, 187–195.
- (10) Ganesan, S.; Vasudevan, N. Impacts of perfluorinated compounds on human health. *Bull. Environ. Pharmacol. Life Sci.* 2015, 4, 183–191.
- (11) Reed, C. E.; Fenton, S. E. Effects of PFOA on Endocrine-Related Systems. In *Molecular and Integrative Toxicology*; deWitt, J. C., Ed.; Springer: New York, NY, 2015; pp 249–264.
- (12) Steenland, K.; Fletcher, T.; Savitz, D. A. Epidemiologic evidence on the health effects of perfluorooctanoic acid (PFOA). *Environ. Health Perspect* 2010, 118, 1100–1108.
- (13) White, S. S.; Fenton, S. E.; Hines, E. P. Endocrine disrupting properties of perfluorooctanoic acid. *J. Steroid Biochem. Mol. Biol.* 2011, 127, 16–26.
- (14) Fourth National Report on Human Exposures to Environmental Chemicals; Department of Health and Human Services, Centers for Disease Control and Prevention: Atlanta, GA, 2009.
- (15) Calafat, A. M.; Kuklenyik, Z.; Reidy, J. A.; Caudill, S. P.; Tully, J. S.; Needham, L. L. Serum concentrations of 11 polyfluoroalkyl compounds in the U.S. population: data from the national health and nutrition examination survey (NHANES). *Environ. Sci. Technol.* 2007, 41, 2237–2242.
- (16) Biomonitoring California. <http://www.biomonitoring.ca.gov/> (accessed 2016).
- (17) Haug, L. S.; Huber, S.; Becher, G.; Thomsen, C. Characterisation of human exposure pathways to perfluorinated compounds—comparing exposure estimates with biomarkers of exposure. *Environ. Int.* 2011, 37, 687–693.
- (18) Jain, R. B. Contribution of diet and other factors to the levels of selected polyfluorinated compounds: data from NHANES 2003–2008. *Int. J. Hyg. Environ. Health* 2014, 217, 52–61.
- (19) Kato, K.; Ye, X.; Calafat, A. M. PFASs in General Population. In *Toxicological Effects of Perfluoroalkyl and Polyfluoroalkyl Substances*; Molecular and Integrative Toxicology; DeWitt, J. C., Ed.; Springer International Publishing: Switzerland, 2015; Chapter 3.
- (20) Wu, X. M.; Bennett, D. H.; Calafat, A. M.; Kato, K.; Strynar, M.; Andersen, E.; Moran, R. E.; Tancredi, D. J.; Tulve, N. S.; Hertz-Picciotto, I. Serum concentrations of perfluorinated compounds (PFC) among selected populations of children and adults in California. *Environ. Res.* 2015, 136, 264–273.
- (21) Emmett, E. A.; Shofer, F. S.; Zhang, H.; Freeman, D.; Desai, C.; Shaw, L. M. Community exposure to perfluorooctanoate: relationships between serum concentrations and exposure sources. *J. Occup. Environ. Med.* 2006, 48, 759–770.
- (22) Hoffman, K.; Webster, T. F.; Bartell, S. M.; Weisskopf, M. G.; Fletcher, T.; Vieira, V. M. Private drinking water wells as a source of exposure to perfluorooctanoic acid (PFOA) in communities surrounding a fluoropolymer production facility. *Environ. Health Perspect.* 2011, 119, 92–97.
- (23) Holzer, J.; Midasch, O.; Rauchfuss, K.; Kraft, M.; Reupert, R.; Angerer, J.; Kleeschulte, P.; Marschall, N.; Wilhelm, M. Biomonitoring of perfluorinated compounds in children and adults exposed to perfluorooctanoate-contaminated drinking water. *Environ. Health Perspect* 2008, 116, 651–657.
- (24) Environmental Health Tracking and Biomonitoring: Connecting Environment, Exposures and Public Health; Minnesota Department of Health Environmental Health Tracking and Biomonitoring: St. Paul, MN, 2013.
- (25) Post, G. B.; Cohn, P. D.; Cooper, K. R. Perfluorooctanoic acid (PFOA), an emerging drinking water contaminant: a critical review of recent literature. *Environ. Res.* 2012, 116, 93–117.
- (26) Seals, R.; Bartell, S. M.; Steenland, K. Accumulation and clearance of perfluorooctanoic acid (PFOA) in current and former residents of an exposed community. *Environ. Health Perspect.* 2011, 119, 119–124.
- (27) Steenland, K.; Jin, C.; MacNeil, J.; Lally, C.; Ducatman, A.; Vieira, V.; Fletcher, T. Predictors of PFOA levels in a community surrounding a chemical plant. *Environ. Health Perspect* 2009, 117, 1083–1088.
- (28) Houtz, E. F.; Higgins, C. P.; Field, J. A.; Sedlak, D. L. Persistence of perfluoroalkyl acid precursors in AFFF-impacted groundwater and soil. *Environ. Sci. Technol.* 2013, 47, 8187–8195.
- (29) Lindstrom, A. B.; Strynar, M. J.; Delinsky, A. D.; Nakayama, S. F.; McMillan, L.; Libelo, E. L.; Neill, M.; Thomas, L. Application of VWTP biosolids and resulting perfluorinated compound contamination of surface and well water in Decatur, Alabama, USA. *Environ. Sci. Technol.* 2011, 45, 8015–8021.
- (30) Moody, C. A.; Hebert, G. N.; Strauss, S. H.; Field, J. A. Occurrence and persistence of perfluorooctanesulfonate and other perfluorinated surfactants in groundwater at a fire-training area at Wurtsmith Air Force Base, Michigan, USA. *J. Environ. Monit.* 2003, 5, 341–345.
- (31) Moody, C. A.; Martin, J. W.; Kwan, W. C.; Muir, D. C.; Mabury, S. A. Monitoring perfluorinated surfactants in biota and surface water samples following an accidental release of fire-fighting foam into Etobicoke Creek. *Environ. Sci. Technol.* 2002, 36, 545–551.
- (32) U.S. Environmental Protection Agency (EPA). Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 3) for Public Water Systems. In *Federal Register* Vol. 77, No. 85, May 2, 2012 Rules and Regulations: 2012; Vol. 77 FR 26072.
- (33) Bernstein, L.; Allen, M.; Anton-Culver, H.; Deapen, D.; Horn-Ross, P. L.; Peel, D.; Pinder, R.; Reynolds, P.; Sullivan-Halley, J.; West, D.; Wright, W.; Ziogas, A.; Ross, R. K. High breast cancer incidence rates among California teachers: results from the California Teachers Study (United States). *Cancer Causes Control* 2002, 13, 625–635.
- (34) Wang, M.; Park, J. S.; Petreas, M. Temporal changes in the levels of perfluorinated compounds in California women's serum over the past 50 years. *Environ. Sci. Technol.* 2011, 45, 7510–7516.
- (35) United States Environmental Protection Agency (US EPA). Occurrence Data for the Unregulated Contaminant Monitoring Rule: UCMR 3 (2013–2015) <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule> (accessed April 12, 2016).
- (36) United States Environmental Protection Agency (US EPA). Lifetime Health Advisories and Health Effects Support Documents for

Perfluorooctanoic Acid and Perfluorooctane Sulfonate, EPA-HQ-OW-2014-0138; FRL-9946-91-OW. Federal Register 2016, 81, 33250–33251.

(37) Post, G. B.; Louis, J. B.; Lippincott, R. L.; Procopio, N. A. Occurrence of perfluorinated compounds in raw water from New Jersey public drinking water systems. *Environ. Sci. Technol.* 2013, 47, 13266–13275.

(38) Egeghy, P. P.; Lorber, M. An assessment of the exposure of Americans to perfluorooctane sulfonate: a comparison of estimated intake with values inferred from NHANES data. *J. Exposure Sci. Environ. Epidemiol.* 2011, 21, 150–168.

(39) Draft Health Effects Document for Perfluorooctanoic Acid (PFOA); EPA Document Number: 822R14001; United States Environmental Protection Agency (U.S. EPA): Washington, DC, February 2014.

(40) Draft Health Effects Document for Perfluorooctane Sulfonate (PFOS); EPA Document Number: 822R14002; United States Environmental Protection Agency (U.S. EPA): Washington, DC, February 2014.

(41) Fromme, H.; Tittlemier, S. A.; Volkel, W.; Wilhelm, M.; Twardella, D. Perfluorinated compounds—exposure assessment for the general population in Western countries. *Int. J. Hyg. Environ. Health* 2009, 212, 239–270.

(42) Final Preliminary Assessment Report for Perfluorinated Compounds at Travis Air Force Base; Air Force Civil Engineering Center: Fairfield, CA, May 2015.

(43) Houtz, E. F.; Sutton, R.; Park, J. S.; Sedlak, M. Poly- and perfluoroalkyl substances in wastewater: Significance of unknown precursors, manufacturing shifts, and likely AFFF impacts. *Water Res.* 2016, 95, 142–149.

(44) Grandjean, P.; Clapp, R. Perfluorinated Alkyl Substances: Emerging Insights Into Health Risks. *New Solut* 2015, 25, 147–163.

(45) Khalil, N.; Lee, M.; Steenland, K. Epidemiological Findings 2015, 305–335.

From: Strong, Jamie
Location: Conference Code/ Ex. 6
Importance: Normal
Subject: FW: Teleconference Briefing: PFOS/PFOA: Township of Oscoda Local Officials
Start Date/Time: Thur 6/16/2016 6:30:00 PM
End Date/Time: Thur 6/16/2016 7:00:00 PM

-----Original Appointment-----

From: Hannon, Arnita
Sent: Thursday, June 09, 2016 6:21 PM
To: Hannon, Arnita; Flaherty, Colleen; Strong, Jamie; Matthews, Demond; Archibald, Ingrid; Beckmann, Ronna Erin; Deamer, Eileen; Ann Richards; 'Bennett, Jacob'
Cc: Davis, CatherineM; Rupp, Mark; Bowles, Jack; Burneson, Eric; 'Bob Stalker'; Bair, Rita; Harris, Kimberly; Poy, Thomas
Subject: Teleconference Briefing: PFOS/PFOA: Township of Oscoda Local Officials
When: Thursday, June 16, 2016 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).

Conference Code/ Ex. 6

This is RESCHEDULED from today. So sorry we were not able to complete today's call and deeply appreciate everyone's patience and flexibility. Hope everyone can join us on Thursday. Thank you!

Representing the Charter Township of Oscoda: Robert Stalker, Superintendent; Ann Richards, Community Development Coordinator

Conference Call Briefing: PFOS/PFOA

Request: From Congressman Dan Kildee on behalf of the Charter Township of Oscoda, MI

Interest: Local officials are interested in how EPA determined the 70 ppb Health Advisory. EPA staff will discuss the health studies and analysis used to derive the PFOA/PFOS Health Advisory.

Background: According to the Congressman's District office staff, it appears that the town's worst site is a little below the 70 ppb level and local officials are interested in how this level was set. There are indications from old water in fire hydrants that the levels were much higher in the past and only recently started looking for PFCs.

Representing the Township of Oscoda: List will be made available once I receive it.

EPA Staff: Colleen Flaherty, Biologist; Jamie Strong, Branch Chief, OW/OST; Region V

Robert Stalker, Superintendent

Ann Richards, Community Development Coordinator

To: 'Sheng-Lu.Soong@suez-na.com'['Sheng-Lu.Soong@suez-na.com'];
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Cc: 'Tina.Fan@doh.state.nj.us'['Tina.Fan@doh.state.nj.us'];
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 'cooper@aesop.rutgers.edu'['cooper@aesop.rutgers.edu']; MacGillivray,
 Ron[Ron.MacGillivray@drbc.nj.gov]
From: Alibrando, Dorothy
Sent: Tue 6/7/2016 7:34:10 PM
Subject: PFCs - PubMed alert thru 4/30/2016
[PFCsApr2016.txt](#)

Attached is the copy you need if you are using End/Note. The May alert will be processed later this month.

87 journal articles from “Anal Bioanal Chem” to “Water Res” from 4/1 to 4/30/2016.

1. [μ-Nitrido Diiron Macrocyclic Platform: Particular Structure for Particular Catalysis.](#)
 Afanasiev P, Sorokin AB.
 Acc Chem Res. 2016 Apr 19;49(4):583-93. doi: 10.1021/acs.accounts.5b00458.
 Epub 2016 Mar 11.
 PMID: 26967682
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2Novel Fluorinated Polymers Containing Short Perfluorobutyl Side Chains and Their Super Wetting Performance on Diverse Substrates.

Jiang J, Zhang G, Wang Q, Zhang Q, Zhan X, Chen F.
ACS Appl Mater Interfaces. 2016 Apr 27;8(16):10513-23. doi:
10.1021/acsami.6b01102. Epub 2016 Apr 14.
PMID: 27052113
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3Investigation of perfluorooctanoic acid induced DNA damage using electrogenerated chemiluminescence associated with charge transfer in DNA.

Lu L, Guo L, Li M, Kang T, Cheng S, Miao W.
Anal Bioanal Chem. 2016 Apr 23. [Epub ahead of print]
PMID: 27108285
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4Screening of Toxic Chemicals in a Single Drop of Human Whole Blood Using Ordered Mesoporous Carbon as a Mass Spectrometry Probe.

Huang X, Liu Q, Fu J, Nie Z, Gao K, Jiang G.
Anal Chem. 2016 Apr 5;88(7):4107-13. doi: 10.1021/acs.analchem.6b00444. Epub
2016 Mar 24.
PMID: 26985970
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5Investigations into the separation behaviour of perfluorinated C8 and undecanoic acid modified silica hydride stationary phases.

Kulsing C, Yang Y, Sepehrifar R, Lim M, Toppete J, Matyska MT, Pesek JJ, Boysen RI, Hearn MT.
Anal Chim Acta. 2016 Apr 15;916:102-11. doi: 10.1016/j.aca.2016.02.013.
PMID: 27016444
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6Development of a gas phase source for perfluoroalkyl acids to examine atmospheric sampling methods.

MacInnis JJ, VandenBoer TC, Young CJ.
Analyst. 2016 Apr 18. [Epub ahead of print]
PMID: 27087551
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7Screening of potential probiotic lactic acid bacteria based on gastrointestinal properties and perfluorooctanoate toxicity.

Xing J, Wang F, Xu Q, Yin B, Fang D, Zhao J, Zhang H, Chen YQ, Wang G, Chen W. Appl Microbiol Biotechnol. 2016 Apr 19. [Epub ahead of print]

PMID: 27094185

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8Zebrafish reproductive toxicity induced by chronic perfluorononanoate exposure.

Zhang W, Sheng N, Wang M, Zhang H, Dai J.

Aquat Toxicol. 2016 Jun;175:269-76. doi: 10.1016/j.aquatox.2016.04.005. Epub 2016 Apr 5.

PMID: 27082981

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9Chronic perfluorooctane sulfonate (PFOS) exposure induces hepatic steatosis in zebrafish.

Cheng J, Lv S, Nie S, Liu J, Tong S, Kang N, Xiao Y, Dong Q, Huang C, Yang D.

Aquat Toxicol. 2016 Jul;176:45-52. doi: 10.1016/j.aquatox.2016.04.013. Epub 2016 Apr 16.

PMID: 27108203

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10Perfluorooctanoic acid disrupts the blood-testis barrier and activates the TNF α /p38 MAPK signaling pathway in vivo and in vitro.

Lu Y, Luo B, Li J, Dai J.

Arch Toxicol. 2016 Apr;90(4):971-83. doi: 10.1007/s00204-015-1492-y. Epub 2015 Mar 6.

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Arthritis Care Res (Hoboken). 2016 Apr;68(4):493-501. doi: 10.1002/acr.22691.

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Leifert D, Artiukhin DG, Neugebauer J, Galstyan A, Strassert CA, Studer A. *Chem Commun (Camb)*. 2016 May 21;52(35):5997-6000. doi: 10.1039/c6cc02284g. Epub 2016 Apr 11. PMID: 27063553

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[15 Synthesis of Organofluoro Compounds Using Methyl Perfluoroalk-2-ynoates as Building Blocks.](#)

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Epub 2016 Apr 25.

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Chemistry. 2016 Apr 25;22(18):6218-22. doi: 10.1002/chem.201600229. Epub 2016 Mar 16.

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Chemosphere. 2016 Jul;155:380-7. doi: 10.1016/j.chemosphere.2016.04.006. Epub 2016 Apr 30.

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Chang ET, Adami HO, Boffetta P, Wedner HJ, Mandel JS.

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Wang Z, Cousins IT, Berger U, Hungerbühler K, Scheringer M.
 Environ Int. 2016 Apr-May;89-90:235-47. doi: 10.1016/j.envint.2016.01.023.
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31 Impacts of daily intakes on the isomeric profiles of perfluoroalkyl substances (PFASs) in human serum.
 Shan G, Wang Z, Zhou L, Du P, Luo X, Wu Q, Zhu L.
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 Manzano-Salgado CB, Casas M, Lopez-Espinosa MJ, Ballester F, Martinez D, Ibarluzea J, Santa-Marina L, Schettgen T, Vioque J, Sunyer J, Vrijheid M.
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34 Perfluorinated compounds in soil, surface water, and groundwater from rural areas in eastern China.
 Chen S, Jiao XC, Gai N, Li XJ, Wang XC, Lu GH, Piao HT, Rao Z, Yang YL.
 Environ Pollut. 2016 Apr;211:124-31. doi: 10.1016/j.envpol.2015.12.024.
 PMID: 26745397
[Similar articles](#)

35 Elevated levels of short carbon-chain PFCAs in breast milk among Korean women:

Current status and potential challenges.

Kang H, Choi K, Lee HS, Kim DH, Park NY, Kim S, Kho Y.

Environ Res. 2016 Jul;148:351-9. doi: 10.1016/j.envres.2016.04.017. Epub 2016 Apr 23.

PMID: 27111244

[Similar articles](#)36. Perfluorooctanoic acid exposure and natural menopause: A longitudinal study in a community cohort.

Dhingra R, Darrow LA, Klein M, Winquist A, Steenland K.

Environ Res. 2016 Apr;146:323-30. doi: 10.1016/j.envres.2015.12.037.

PMID: 26802619

[Similar articles](#)37. Variability and epistemic uncertainty in water ingestion rates and pharmacokinetic parameters, and impact on the association between perfluorooctanoate and preeclampsia in the C8 Health Project population.

Avanasi R, Shin HM, Vieira VM, Bartell SM.

Environ Res. 2016 Apr;146:299-307. doi: 10.1016/j.envres.2016.01.011.

PMID: 26796985

[Similar articles](#)38. Common carp Cyprinus carpio responses to sub-chronic exposure to perfluorooctanoic acid.

Giari L, Vincenzi F, Badini S, Guerranti C, Dezfouli BS, Fano EA, Castaldelli G.

Environ Sci Pollut Res Int. 2016 Apr 23. [Epub ahead of print]

PMID: 27107988

[Similar articles](#)39. Nationwide Distribution of Per- and Polyfluoroalkyl Substances in Outdoor Dust in Mainland China From Eastern to Western Areas.

Yao Y, Sun H, Gan Z, Hu H, Zhao Y, Chang S, Zhou Q.

Environ Sci Technol. 2016 Apr 5;50(7):3676-85. doi: 10.1021/acs.est.6b00649. Epub 2016 Mar 23.

PMID: 26966787

[Similar articles](#)

40Pesticide Mixture Toxicity in Surface Water Extracts in Snails (*Lymnaea stagnalis*) by an in Vitro Acetylcholinesterase Inhibition Assay and Metabolomics.

Tufi S, Wassenaar PN, Osorio V, de Boer J, Leonards PE, Lamoree MH.

Environ Sci Technol. 2016 Apr 5;50(7):3937-44. doi: 10.1021/acs.est.5b04577. Epub 2016 Mar 9.

PMID: 26900769

[Similar articles](#)

41Effects of Aqueous Film-Forming Foams (AFFFs) on Trichloroethene (TCE) Dechlorination by a *Dehalococcoides mccartyi*-Containing Microbial Community.

Harding-Marjanovic KC, Yi S, Weathers TS, Sharp JO, Sedlak DL, Alvarez-Cohen L.

Environ Sci Technol. 2016 Apr 5;50(7):3352-61. doi: 10.1021/acs.est.5b04773. Epub 2016 Mar 21.

PMID: 26894610

[Similar articles](#)

42Design and synthesis of novel bicalutamide and enzalutamide derivatives as antiproliferative agents for the treatment of prostate cancer.

Bassetto M, Ferla S, Pertusati F, Kandil S, Westwell AD, Brancale A, McGuigan C.

Eur J Med Chem. 2016 Aug 8;118:230-43. doi: 10.1016/j.ejmech.2016.04.052. Epub 2016 Apr 22.

PMID: 27131065 **[Free Article]**

[Similar articles](#)

43The modifying effect of vitamin C on the association between perfluorinated compounds and insulin resistance in the Korean elderly: a double-blind, randomized, placebo-controlled crossover trial.

Kim JH, Park HY, Jeon JD, Kho Y, Kim SK, Park MS, Hong YC.

Eur J Nutr. 2016 Apr;55(3):1011-20. doi: 10.1007/s00394-015-0915-0. Epub 2015 May 5.

PMID: 25939797

[Similar articles](#)

44Prevention of inaccurate targeting of proximal screws during reconstruction femoral nailing.

Kim JW, Cuellar DO, Hao J, Herbert B, Mauffrey C.

Eur J Orthop Surg Traumatol. 2016 May;26(4):391-6. doi: 10.1007/s00590-016-1769-

8. Epub 2016 Apr 5.

PMID: 27048548

[Similar articles](#)

45multaneous determination of perfluoroalkyl iodides, perfluoroalkane sulfonamides, fluorotelomer alcohols, fluorotelomer iodides and fluorotelomer acrylates and methacrylates in water and sediments using solid-phase microextraction-gas chromatography/mass spectrometry.

Bach C, Boiteux V, Hemard J, Colin A, Rosin C, Munoz JF, Dauchy X.

J Chromatogr A. 2016 May 27;1448:98-106. doi: 10.1016/j.chroma.2016.04.025. Epub 2016 Apr 12.

PMID: 27125188

[Similar articles](#)

46water resistant solid-phase microextraction fiber with high selectivity prepared by a metal organic framework with perfluorinated pores.

Niu J, Li Z, Yang H, Ye C, Chen C, Li D, Xu J, Fan L.

J Chromatogr A. 2016 Apr 8;1441:16-23. doi: 10.1016/j.chroma.2016.02.076. Epub 2016 Mar 3.

PMID: 26949215

[Similar articles](#)

47immobilized metal affinity chromatography on collapsed Langmuir-Blodgett iron(III) stearate films and iron(III) oxide nanoparticles for bottom-up phosphoproteomics.

Gladilovich V, Greifenhagen U, Sukhodolov N, Selyutin A, Singer D, Thieme D, Majovsky P, Shirkin A, Hoehenwarter W, Bonitenko E, Podolskaya E, Frolov A.

J Chromatogr A. 2016 Apr 22;1443:181-90. doi: 10.1016/j.chroma.2016.03.044. Epub 2016 Mar 19.

PMID: 27016113

[Similar articles](#)

48hybrid fluororous monolithic capillary column with integrated nanoelectrospray ionization emitter for determination of perfluoroalkyl acids by nano-liquid chromatography-nanoelectrospray ionization-mass spectrometry/mass spectrometry.

Zhang H, Ou J, Wei Y, Wang H, Liu Z, Zou H.

J Chromatogr A. 2016 Apr 1;1440:66-73. doi: 10.1016/j.chroma.2016.02.025.

PMID: 26916593

[Similar articles](#)

49. Adsorption behavior and mechanism of perfluorooctane sulfonate on nanosized inorganic oxides.

Lu X, Deng S, Wang B, Huang J, Wang Y, Yu G.

J Colloid Interface Sci. 2016 Jul 15;474:199-205. doi: 10.1016/j.jcis.2016.04.032. Epub 2016 Apr 22.

PMID: 27127908

[Similar articles](#)

50. The effects of alkylammonium counterions on the aggregation of fluorinated surfactants and surfactant ionic liquids.

Pottage MJ, Greaves TL, Garvey CJ, Tabor RF.

J Colloid Interface Sci. 2016 Aug 1;475:72-81. doi: 10.1016/j.jcis.2016.04.039. Epub 2016 Apr 26.

PMID: 27156087

[Similar articles](#)

51. Fabrication of ordered honeycomb amphiphobic films with extremely low fluorine content.

Gao F, Wang W, Li X, Li L, Lin J, Lin S.

J Colloid Interface Sci. 2016 Apr 15;468:70-7. doi: 10.1016/j.jcis.2016.01.035.

PMID: 26828276

[Similar articles](#)

52. Temperature effect on photolysis decomposing of perfluorooctanoic acid.

Zhang T, Pan G, Zhou Q.

J Environ Sci (China). 2016 Apr;42:126-33. doi: 10.1016/j.jes.2015.05.008.

PMID: 27090703

[Similar articles](#)

53. nationwide survey of perfluorinated alkyl substances in waters, sediment and biota collected from aquatic environment in Vietnam: Distributions and bioconcentration profiles.

Lam NH, Cho CR, Kannan K, Cho HS.

J Hazard Mater. 2016 Apr 7. pii: S0304-3894(16)30351-X. doi:

10.1016/j.jhazmat.2016.04.010. [Epub ahead of print]

PMID: 27106518

[Similar articles](#)

54 Adsorptive removal of emerging polyfluoroalkyl substances F-53B and PFOS by anion-exchange resin: A comparative study.

Gao Y, Deng S, Du Z, Liu K, Yu G.

J Hazard Mater. 2016 Apr 28. pii: S0304-3894(16)30410-1. doi:

10.1016/j.jhazmat.2016.04.069. [Epub ahead of print]

PMID: 27184593

[Similar articles](#)

55 Deriving environmental quality standards for perfluorooctanoic acid (PFOA) and related short chain perfluorinated alkyl acids.

Valsecchi S, Conti D, Crebelli R, Polesello S, Rusconi M, Mazzoni M, Preziosi E, Carere M, Lucentini L, Ferretti E, Balzamo S, Simeone MG, Aste F.

J Hazard Mater. 2016 Apr 22. pii: S0304-3894(16)30396-X. doi:

10.1016/j.jhazmat.2016.04.055. [Epub ahead of print]

PMID: 27156398

[Similar articles](#)

56 Shifts in production of perfluoroalkyl acids affect emissions and concentrations in the environment of the Xiaoqing River Basin, China.

Wang P, Lu Y, Wang T, Meng J, Li Q, Zhu Z, Sun Y, Wang R, Giesy JP.

J Hazard Mater. 2016 Apr 15;307:55-63. doi: 10.1016/j.jhazmat.2015.12.059.

PMID: 26775106

[Similar articles](#)

57 Enantioselective Synthesis of Dideoxy-tetrafluorinated Hexoses.

Golten S, Fontenelle CQ, Timofte RS, Bailac L, Light M, Sebban M, Oulyadi H, Linclau B.

J Org Chem. 2016 Jun 3;81(11):4434-53. doi: 10.1021/acs.joc.6b00302. Epub 2016 Apr 6.

PMID: 27014960

[Similar articles](#)

58 Cu-Catalyzed Multicomponent Reaction of Styrenes, Perfluoroalkyl Halide, Alcohol, and

tert-Butyl Hydroperoxide: One-Pot Synthesis of (Z)- β -Alkoxyperfluoroalkenone.

Luo Q, Liu C, Tong J, Shao Y, Shan W, Wang H, Zheng H, Cheng J, Wan X.
J Org Chem. 2016 Apr 15;81(8):3103-11. doi: 10.1021/acs.joc.5b02664. Epub 2016 Mar 25.

PMID: 26980724

[Similar articles](#)

59. FC and Triglyme for Li-Air Batteries: A Molecular Dynamics Study.

Kuritz N, Murat M, Balaish M, Ein-Eli Y, Natan A.

J Phys Chem B. 2016 Apr 7;120(13):3370-7. doi: 10.1021/acs.jpcb.5b12075. Epub 2016 Mar 24.

PMID: 26982570

[Similar articles](#)

60. Mapping and Tuning the Fluorescence of Perfluorinated Polyanilines Synthesized through Liquid-Liquid Interfaces.

Dallas P, Rašović I, Porfyrakis K.

J Phys Chem B. 2016 Apr 7;120(13):3441-54. doi: 10.1021/acs.jpcb.6b00739. Epub 2016 Mar 23.

PMID: 26963137

[Similar articles](#)

61. Probing the Lone Pair... π -Hole Interaction in Perfluorinated Heteroaromatic Rings: The Rotational Spectrum of Pentafluoropyridine-Water.

Calabrese C, Gou Q, Maris A, Caminati W, Melandri S.

J Phys Chem Lett. 2016 Apr 21;7(8):1513-7. doi: 10.1021/acs.jpclett.6b00473. Epub 2016 Apr 11.

PMID: 27055098

[Similar articles](#)

62. Photolysis-driven merging of microdroplets in microfluidic chambers.

Dunkel P, Hayat Z, Barosi A, Bchellaoui N, Dhimane H, Dalko PI, El Abed AI.

Lab Chip. 2016 Apr 12;16(8):1484-91. doi: 10.1039/c6lc00024j.

PMID: 27021527

[Similar articles](#)

63. Superoleophobic Surfaces Obtained via Hierarchical Metallic Meshes.

Grynyov R, Bormashenko E, Whyman G, Bormashenko Y, Musin A, Pogreb R, Starostin A, Valtisfer V, Strelnikov V, Schechter A, Kolagatla S.

Langmuir. 2016 May 3;32(17):4134-40. doi: 10.1021/acs.langmuir.6b00248. Epub 2016 Apr 22.

PMID: 27077637

[Similar articles](#)

64. anus Nanofilms.

Ghoussoub YE, Schlenoff JB.

Langmuir. 2016 Apr 19;32(15):3623-9. doi: 10.1021/acs.langmuir.6b00672. Epub 2016 Apr 7.

PMID: 27054378

[Similar articles](#)

65. Preparation of Fluorous Solvent-Dispersed Fe₃O₄ Nanocrystals: Role of Oxygen in Ligand Exchange.

Kim Y, Lee S, Kim S.

Langmuir. 2016 Apr 12;32(14):3348-53. doi: 10.1021/acs.langmuir.6b00526. Epub 2016 Apr 4.

PMID: 27018461

[Similar articles](#)

66. Perfluoroalkylated substances (PFASs) and legacy persistent organic pollutants (POPs) in halibut and shrimp from coastal areas in the far north of Norway: Small survey of important dietary foodstuffs for coastal communities.

Carlsson P, Crosse JD, Halsall C, Evenset A, Heimstad ES, Harju M.

Mar Pollut Bull. 2016 Apr 15;105(1):81-7. doi: 10.1016/j.marpolbul.2016.02.053. Epub 2016 Mar 2.

PMID: 26948293

[Similar articles](#)

67. Proximal Femoral Nail Antirotation Versus Reverse Less Invasive Stabilization System-distal Femur for Treating Proximal Femoral Fractures: A Meta-analysis.

Jiang X, Wang Y, Ma X, Ma J, Wang C, Zhang C, Han Z, Sun L, Lu B.

Medicine (Baltimore). 2016 Apr;95(14):e3168. doi: 10.1097/MD.00000000000003168.

PMID: 27057840 **[Free Article]**

[Similar articles](#)

68. Occurrence of virulence-associated genes in *Pasteurella multocida* isolates obtained from different hosts.

Shirzad Aski H, Tabatabaei M.

Microb Pathog. 2016 Jul;96:52-7. doi: 10.1016/j.micpath.2016.04.008.

PMID: 27057674

[Similar articles](#)

69. Nanoparticle chemisorption printing technique for conductive silver patterning with submicron resolution.

Yamada T, Fukuhara K, Matsuoka K, Minemawari H, Tsutsumi J, Fukuda N, Aoshima K, Arai S, Makita Y, Kubo H, Enomoto T, Togashi T, Kurihara M, Hasegawa T.

Nat Commun. 2016 Apr 19;7:11402. doi: 10.1038/ncomms11402.

PMID: 27091238 [Free PMC Article]

[Similar articles](#)

70. Alantriose-conjugation to a fluorinated chlorin derivative generating a PDT photosensitizer with improved water-solubility.

Narumi A, Tsuji T, Shinohara K, Yamazaki H, Kikuchi M, Kawaguchi S, Mae T, Ikeda A, Sakai Y, Kataoka H, Inoue M, Nomoto A, Kikuchi J, Yano S.

Org Biomol Chem. 2016 Apr 14;14(14):3608-13. doi: 10.1039/c6ob00276e. Epub 2016 Mar 15.

PMID: 26978428

[Similar articles](#)

71. (Trifluoromethyl)indoles via Pd(0)-Catalyzed C(sp³)-H Functionalization of Trifluoroacetimidoyl Chlorides.

Pedroni J, Cramer N.

Org Lett. 2016 Apr 15;18(8):1932-5. doi: 10.1021/acs.orglett.6b00795. Epub 2016 Apr 7.

PMID: 27054603

[Similar articles](#)

72. Comments on: Does the PFNA™ nail limit impaction in unstable intertrochanteric femoral fracture? A 115 case-control series, published by M. Hélin, A. Pelissier, P. Boyer, T. Delory, C. Estellat, P. Massin in Orthopaedics & Traumatology:

Surgery & Research 2015;101(1): 45-49.

Li S, Yao XZ, Chang SM.

Orthop Traumatol Surg Res. 2016 Jun;102(4):533-4. doi: 10.1016/j.otsr.2016.03.009.

Epub 2016 Apr 1. **No abstract available.**

PMID: 27052937

Similar articles

73Synthesis of double-wall nanoscrolls intercalated with polyfluorinated cationic surfactant into layered niobate and their magnetic alignment.

Nabetani Y, Uchikoshi A, Miyajima S, Hassan SZ, Ramakrishnan V, Tachibana H, Yamato M, Inoue H.

Phys Chem Chem Phys. 2016 Apr 28;18(17):12108-14. doi: 10.1039/c6cp01547f.

PMID: 27074750

Similar articles

74Designed synthesis of fluorous-functionalized magnetic mesoporous microspheres for specific enrichment of phosphopeptides with fluorous derivatization.

Zhao M, Deng C.

Proteomics. 2016 Apr;16(7):1051-8. doi: 10.1002/pmic.201500323. Epub 2016 Mar 16.

PMID: 26800430

Similar articles

75Effects of Perfluorooctanoic Acid on Metabolic Profiles in Brain and Liver of Mouse Revealed by a High-throughput Targeted Metabolomics Approach.

Yu N, Wei S, Li M, Yang J, Li K, Jin L, Xie Y, Giesy JP, Zhang X, Yu H.

Sci Rep. 2016 Apr 1;6:23963. doi: 10.1038/srep23963.

PMID: 27032815 [Free PMC Article]

Similar articles

76Associations of serum perfluoroalkyl acid levels with T-helper cell-specific cytokines in children: By gender and asthma status.

Zhu Y, Qin XD, Zeng XW, Paul G, Morawska L, Su MW, Tsai CH, Wang SQ, Lee YL, Dong GH.

Sci Total Environ. 2016 Jul 15;559:166-73. doi: 10.1016/j.scitotenv.2016.03.187. Epub 2016 Apr 6.

PMID: 27060656

Similar articles

77 Removal of aqueous perfluorooctanoic acid (PFOA) using starch-stabilized magnetite nanoparticles.

Gong Y, Wang L, Liu J, Tang J, Zhao D.

Sci Total Environ. 2016 Aug 15;562:191-200. doi: 10.1016/j.scitotenv.2016.03.100.

Epub 2016 Apr 18.

PMID: 27100000

[Similar articles](#)

78 Blue sharks (*Prionace glauca*) as bioindicators of pollution and health in the Atlantic Ocean: Contamination levels and biochemical stress responses.

Alves LM, Nunes M, Marchand P, Le Bizec B, Mendes S, Correia JP, Lemos MF, Novais SC.

Sci Total Environ. 2016 Apr 29;563-564:282-292. doi: 10.1016/j.scitotenv.2016.04.085.

[Epub ahead of print]

PMID: 27139301

[Similar articles](#)

79 Modeling the pH-mediated extraction of ionizable organic contaminants to improve the quality of municipal sewage sludge destined for land application.

Venkatesan AK, Halden RU.

Sci Total Environ. 2016 Apr 15;550:736-41. doi: 10.1016/j.scitotenv.2016.01.119.

PMID: 26849337

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80 Does perfluorooctane sulfonate (PFOS) act as chemosensitizer in zebrafish embryos?

Keiter S, Burkhardt-Medicke K, Wellner P, Kais B, Färber H, Skutlarek D, Engwall M, Braunbeck T, Keiter SH, Luckenbach T.

Sci Total Environ. 2016 Apr 1;548-549:317-24. doi: 10.1016/j.scitotenv.2015.12.089.

PMID: 26803730

[Similar articles](#)

81 Assessing the risk associated with the presence of emerging organic contaminants in sludge-amended soil: A country-level analysis.

Thomaidi VS, Stasinakis AS, Borova VL, Thomaidis NS.

Sci Total Environ. 2016 Apr 1;548-549:280-8. doi: 10.1016/j.scitotenv.2016.01.043.

PMID: 26802356

Similar articles

82. simple and highly sensitive assay of perfluorooctanoic acid based on resonance light scattering technique.

Zhang F, Zheng Y, Liang J, Long S, Chen X, Tan K.

Spectrochim Acta A Mol Biomol Spectrosc. 2016 Apr 15;159:7-12. doi: 10.1016/j.saa.2016.01.010.

PMID: 26824483

Similar articles

83. Influence of salinity and temperature on uptake of perfluorinated carboxylic acids (PFCAs) by hydroponically grown wheat (Triticum aestivum L.).

Zhao H, Qu B, Guan Y, Jiang J, Chen X.

Springerplus. 2016 Apr 27;5:541. doi: 10.1186/s40064-016-2016-9. eCollection 2016.

PMID: 27186505 [Free PMC Article]

Similar articles

84. Fluorous-assisted metal chelate affinity extraction technique for analysis of protein kinase activity.

Hayama T, Kiyokawa E, Yoshida H, Imakyure O, Yamaguchi M, Nohta H.

Talanta. 2016 Aug 15;156-157:1-5. doi: 10.1016/j.talanta.2016.04.058. Epub 2016 Apr 27.

PMID: 27260427

Similar articles

85. Validated method for the determination of perfluorinated compounds in placental tissue samples based on a simple extraction procedure followed by ultra-high performance liquid chromatography-tandem mass spectrometry analysis.

Martín J, Rodríguez-Gómez R, Zafra-Gómez A, Alonso E, Vilchez JL, Navalón A.

Talanta. 2016 Apr 1;150:169-76. doi: 10.1016/j.talanta.2015.12.020.

PMID: 26838396

Similar articles

86. Effects of developmental exposure to perfluorooctanoic acid (PFOA) on long bone morphology and bone cell differentiation.

Koskela A, Finnilä MA, Korkalainen M, Spulber S, Koponen J, Håkansson H,

Tuukkanen J, Viluksela M.

Toxicol Appl Pharmacol. 2016 Jun 15;301:14-21. doi: 10.1016/j.taap.2016.04.002.

Epub 2016 Apr 9.

PMID: 27068293

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87The influence of a non-aqueous phase liquid (NAPL) and chemical oxidant application on perfluoroalkyl acid (PFAA) fate and transport.

McKenzie ER, Siegrist RL, McCray JE, Higgins CP.

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TI - μ -Nitrido Diiron Macrocyclic Platform: Particular Structure for Particular Catalysis.

PG - 583-93

LID - 10.1021/acs.accounts.5b00458 [doi]

AB - The ultimate objective of bioinspired catalysis is the development of efficient and clean chemical processes. Cytochrome P450 and soluble methane monooxygenase enzymes efficiently catalyze many challenging reactions. Extensive research has been performed to mimic their exciting chemistry, aiming to create efficient chemical catalysts for functionalization of strong C-H bonds. Two current biomimetic approaches are based on (i) mononuclear metal porphyrin-like complexes and (ii) iron and diiron non-heme complexes. However, biomimetic catalysts capable of oxidizing CH₄ are still to be created. In the search for powerful oxidizing catalysts, we have recently proposed a new bioinspired strategy using N-bridged diiron phthalocyanine and porphyrin complexes. This platform is particularly suitable for stabilization of Fe(IV)Fe(IV) complexes and can be useful to generate high-valent oxidizing active species. Indeed, the possibility of charge delocalization on two iron centers, two macrocyclic ligands, and the nitrogen bridge makes possible the activation of H₂O₂ and peracids. The ultrahigh-valent diiron-oxo species (L)Fe(IV)-N-Fe(IV)(L(+*)) horizontal lineO (L = porphyrin or phthalocyanine) have been prepared at low temperatures and characterized by cryospray MS, UV-vis, EPR, and Mossbauer techniques. The highly electrophilic (L)Fe(IV)-N-Fe(IV)(L(+*)) horizontal lineO species exhibit remarkable reactivity. In this Account, we describe the catalytic applications of μ -nitrido diiron complexes in the oxidation of methane and benzene, in the transformation of aromatic C-F bonds under oxidative conditions, in oxidative dechlorination, and in the formation of C-C bonds. Importantly, all of these reactions can be performed under mild and clean conditions with high conversions and turnover numbers. μ -Nitrido diiron species retain their binuclear structure during catalysis and show the same mechanistic features (e.g., (18)O labeling, formation of benzene epoxide, and NIH shift in aromatic oxidation) as the enzymes operating via high-valent iron-oxo species. μ -Nitrido diiron complexes can react with perfluorinated aromatics under oxidative conditions, while the strongest oxidizing enzymes cannot. Advanced spectroscopic, labeling, and reactivity studies have confirmed the involvement of high-valent diiron-oxo species in these catalytic reactions. Computational studies have shed light on the origin of the remarkable catalytic properties, distinguishing the Fe-N-Fe scaffold from Fe-C-Fe and Fe-O-Fe analogues. X-ray absorption and emission spectroscopies assisted with DFT calculations allow deeper insight into the electronic structure of these particular complexes. Besides the novel chemistry involved, iron phthalocyanines are cheap and readily available in bulk quantities, suggesting high application potential. A variety of macrocyclic ligands can be used in combination with different transition metals to accommodate M-N-M platform and to tune their electronic and catalytic properties. The structural simplicity and flexibility of μ -nitrido dimers make them promising catalysts for many challenging reactions.

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TI - Novel Fluorinated Polymers Containing Short Perfluorobutyl Side Chains and Their Super Wetting Performance on Diverse Substrates.

PG - 10513-23

LID - 10.1021/acsami.6b01102 [doi]

AB - Because the emission of perfluorooctanoic acid (PFOA) was completely prohibited in 2015, the widely used poly- and perfluoroalkyl substances with long perfluoroalkyl groups must be substituted by environmentally friendly alternatives. In this study, one kind of potential alternative (i.e., fluorinated polymers with short perfluorobutyl side chains) has been synthesized from the prepared monomers {i.e., (perfluorobutyl)ethyl acrylate (C4A), (perfluorobutyl)ethyl methacrylate (C4MA), 2-[[[2-(perfluorobutyl)]sulfonyl]methyl]amino]ethyl acrylate (C4SA), and methacrylate (C4SMA)}, and the microstructure, super wetting performance, and applications of the synthesized fluorinated polymers were systematically investigated. The thermal and crystallization behaviors of the fluoropolymer films were characterized by differential scanning calorimetry and wide-angle X-ray diffraction analysis, respectively. Dynamic water-repellent models were constructed. The stable low surface energy and dynamic water- and oil-repellent properties of these synthesized fluorinated polymers with short perfluorobutyl side chains were attributed to the synergetic effect of amorphous fluorinated side chains in perfluoroalkyl acrylate and crystalline hydrocarbon pendant groups in stearyl acrylate. Outstanding water- and oil-repellent properties of fabrics

and any other substrates could be achieved by a facile dip-coating treatment using a fluorinated copolymer dispersion. As a result, we believe that our prepared fluorinated copolymers are potential candidates to replace the fluoroalkylated polymers with long perfluorinated chains in nonstick and self-cleaning applications in our daily life.

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LA - eng

PT - Journal Article

DEP - 20160414

PL - United States

TA - ACS Appl Mater Interfaces

JT - ACS applied materials & interfaces

JID - 101504991

SB - IM

OTO - NOTNLM

OT - crystalline structures

OT - dynamic water repellency

OT - fluoropolymers

OT - short perfluorobutyl chains

OT - surface molecular reconstruction

EDAT- 2016/04/08 06:00

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PHST- 2016/04/14 [aheadofprint]

AID - 10.1021/acsami.6b01102 [doi]

PST - ppublish

SO - ACS Appl Mater Interfaces. 2016 Apr 27;8(16):10513-23. doi: 10.1021/acsami.6b01102. Epub 2016 Apr 14.

PMID- 27108285

OWN - NLM

STAT- Publisher

DA - 20160424

LR - 20160425

IS - 1618-2650 (Electronic)

DP - 2016 Apr 23

TI - Investigation of perfluorooctanoic acid induced DNA damage using electrogenerated chemiluminescence associated with charge transfer in DNA.

AB - An electrogenerated chemiluminescence (ECL)-DNA sensor was designed and fabricated for the investigation of DNA damage by a potential environmental pollutant, perfluorooctanoic acid (PFOA). The ECL-DNA sensor consisted of a Au electrode that had a self-assembled monolayer of 15 base-pair double-stranded (ds) DNA oligonucleotides with covalently attached semiconductor CdSe quantum dots (QDs) at the distal end of the DNA. Characterization of the ECL-DNA sensor was conducted with X-ray photoelectron spectroscopy (XPS), electrochemical impedance spectroscopy (EIS), ECL, and cyclic voltammetry before and after the exposure of the sensor to PFOA. Consistent data revealed that the dsDNA on Au was severely damaged upon the incubation of the electrode in PFOA, causing significant increase in charge (or electron) transfer (CT) resistance within DNA strands. Consequently, the cathodic coreactant ECL responses of the Au/dsDNA-QDs electrode in the presence of K₂S₂O₈ were markedly decreased. The strong interaction between DNA and PFOA via the hydrophobic interaction, especially the formation of F...H hydrogen bonds by insertion of the difluoro-methylene group of PFOA into the DNA base pairs, was believed to be responsible for the dissociation or loosening of dsDNA structure, which inhibited the CT through DNA. A linear relationship between the ECL signal of the sensor and the logarithmical concentration of PFOA displayed a dynamic range of 1.00×10^{-14} - 1.00×10^{-4} M, with a limit of detection of 1.00×10^{-15} M at a signal-to-noise ratio of 3. Graphical Abstract Illustration of ECL detection of PFOA on a Au/dsDNA-QDs ECL-DNA sensor.

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LA - ENG

PT - JOURNAL ARTICLE

DEP - 20160423

TA - Anal Bioanal Chem

JT - Analytical and bioanalytical chemistry

JID - 101134327

OTO - NOTNLM

OT - Biosensors

OT - DNA charge transfer

OT - DNA damage

OT - Electrogenenerated chemiluminescence (ECL)

OT - Perfluorooctanoic acid (PFOA)

OT - Quantum dots

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AID - 10.1007/s00216-016-9559-z [doi]

AID - 10.1007/s00216-016-9559-z [pii]

PST - aheadofprint

SO - Anal Bioanal Chem. 2016 Apr 23.

PMID- 26985970

OWN - NLM

STAT- In-Data-Review

DA - 20160406

IS - 1520-6882 (Electronic)

IS - 0003-2700 (Linking)

VI - 88

IP - 7

DP - 2016 Apr 5

TI - Screening of Toxic Chemicals in a Single Drop of Human Whole Blood Using Ordered Mesoporous Carbon as a Mass Spectrometry Probe.

PG - 4107-13

LID - 10.1021/acs.analchem.6b00444 [doi]

AB - Surface-enhanced laser desorption/ionization (SELDI) is a versatile and high-throughput mass spectrometry (MS) technique that uses a probe for extraction, enrichment, desorption, and ionization of target analytes. Here we report ordered mesoporous carbon as a new SELDI probe for rapid screening and identification of trace amount of toxic chemicals in a single drop of human whole blood without complicated sample preparation procedures. We demonstrate that ordered mesoporous carbon not only can selectively enrich a wide variety of low-mass toxic compounds from whole blood samples but also can be used as an excellent matrix to assist the laser desorption/ionization process of small molecules with low background noise, high repeatability, and good salt tolerance. High sensitivity (detection limits at ppt levels) and good reproducibility for typical toxic compounds were obtained. With CMK-8 as a SELDI probe, we successfully identified and screened six perfluorinated compounds in a single

drop of whole blood collected from workers in a perfluorochemical plant. The method was also validated with complex samples such as human urine and environmental water samples. With distinct advantages such as simplicity, rapidness, minimal sample requirement, and high reliability, this method keeps great promise for various aspects of application.

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LA - eng

PT - Journal Article

DEP - 20160324

PL - United States

TA - Anal Chem

JT - Analytical chemistry

JID - 0370536

SB - IM

EDAT- 2016/03/18 06:00

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PHST- 2016/03/24 [aheadofprint]

AID - 10.1021/acs.analchem.6b00444 [doi]

PST - ppublish

SO - Anal Chem. 2016 Apr 5;88(7):4107-13. doi: 10.1021/acs.analchem.6b00444. Epub 2016

Mar 24.

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OWN - NLM

STAT- In-Data-Review

DA - 20160326

IS - 1873-4324 (Electronic)

IS - 0003-2670 (Linking)

VI - 916

DP - 2016 Apr 15

TI - Investigations into the separation behaviour of perfluorinated C8 and undecanoic acid modified silica hydride stationary phases.

PG - 102-11

LID - 10.1016/j.aca.2016.02.013 [doi]

LID - S0003-2670(16)30214-8 [pii]

AB - In this study, the surface charge properties of perfluorinated C8 (PerfluoroC8) and undecanoic acid (UDA) modified silica hydride stationary phases have been investigated. The zeta potential values of these stationary phases were measured in aqueous/acetonitrile mobile phases of different pH, buffer concentrations and acetonitrile contents. The retention behaviour of several basic, acidic and neutral compounds were then examined with these two stationary phases, with U-shaped retention dependencies evident with regard to the organic solvent content of the mobile phase. Plots of the logarithmic retention factor versus buffer concentration revealed slopes ≥ -0.41 for both stationary phases, indicating the involvement of mixed mode retention mechanisms with contributions from both ionic and non-ionic interactions. Using a linear solvation energy relationship approach, the origins of these interactions under different mobile phase conditions were differentiated and quantified. The PerfluoroC8 stationary phase exhibited stronger retention for basic compounds under high acetonitrile content mobile phase conditions, whilst stronger retention was observed for all compounds with the UDA stationary phase under high aqueous content mobile phase conditions. The more negative zeta potentials of the UDA stationary phase correlated with higher total charge density, surface charge density and charge density at the beta plane (the outer plane of the double layer) compared to the PerfluoroC8 stationary phase. With mobile phases of low buffer concentrations, more negative zeta potential values were unexpectedly observed for the PerfluoroC8 stationary phase with slight increases in the C descriptor value, reflecting also the greater accessibility of the analytes to the stationary phase surface. Comparison of the retention behaviours on these phases with other types of silica hydride stationary phases has revealed different patterns of selectivity.

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 LA - eng
 PT - Journal Article
 DEP - 20160220
 PL - Netherlands
 TA - Anal Chim Acta
 JT - Analytica chimica acta
 JID - 0370534
 SB - IM
 OTO - NOTNLM
 OT - Aqueous normal-phase behaviour
 OT - Linear solvation energy relationships
 OT - Silica hydride stationary phases
 OT - Zeta potential measurements
 EDAT- 2016/03/27 06:00
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 PHST- 2016/02/12 [revised]
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 PHST- 2016/02/20 [aheadofprint]
 AID - S0003-2670(16)30214-8 [pii]
 AID - 10.1016/j.aca.2016.02.013 [doi]
 PST - ppublish
 SO - Anal Chim Acta. 2016 Apr 15;916:102-11. doi: 10.1016/j.aca.2016.02.013. Epub 2016 Feb 20.
 PMID- 27087551
 OWN - NLM
 STAT- Publisher
 DA - 20160418
 LR - 20160419
 IS - 1364-5528 (Electronic)
 IS - 0003-2654 (Linking)
 DP - 2016 Apr 18
 TI - Development of a gas phase source for perfluoroalkyl acids to examine atmospheric sampling methods.
 AB - An inability to produce environmentally relevant gaseous mixing ratios of

perfluoroalkyl acids (PFAAs), ubiquitous global contaminants, limits the analytical reliability of atmospheric chemists to make accurate gas and particulate measurements that are demonstrably free of interferences due to sampling artefacts. A gas phase source for PFAAs based on the acid displacement mechanism using perfluoropropionate (PFPrA), perfluorobutanoate (PFBA), perfluorohexanoate (PFHxA), and perfluorooctanoate (PFOA) has been constructed. The displacement efficiency of gas phase perfluorocarboxylic acids (PFCAs) is inversely related to chain length. Decreasing displacement efficiencies for PFPrA, PFBA, PFHxA, and PFOA were 90% +/- 20%, 40% +/- 10%, 40% +/- 10%, 9% +/- 4%, respectively. Generating detectable amounts of gas phase perfluorosulfonic acids (PFSAs) was not possible. It is likely that lower vapour pressure and much higher acidity play a role in this lack of emission. PFCA emission rates were not elevated by increasing relative humidity (25%-75%), nor flow rate of carrier gas from 33-111 sccm. Overall, reproducible gaseous production of PFCAs was within the error of the production of hydrochloric acid (HCl) as a displacing acid (+/-20%) and was accomplished using a dry nitrogen flow of 33 +/- 2 sccm. A reproducible mass emission rate of 0.97 +/- 0.10 ng min⁻¹ (n = 8) was observed for PFBA. This is equivalent to an atmospheric mixing ratio of 12 ppmv, which is easily diluted to environmentally relevant mixing ratios of PFBA. Conversely, generating gas phase perfluorononanoic acid (PFNA) by sublimating the solid acid under the same conditions produced a mass emission rate of 2800 ng min⁻¹, which is equivalent to a mixing ratio of 18 ppthv and over a million times higher than suspected atmospheric levels. Thus, for analytical certification of atmospheric sampling methods, generating gas phase standards for PFCAs is best accomplished using acid displacement under dry conditions. This yields quickly stabilized, reproducible emissions and mixing ratios that are easily diluted to environmentally relevant levels. Gas phase PFBA from this source has also been shown to be quantitatively collected using an annular denuder coated with sodium carbonate (Na₂CO₃) according to Environmental Protection Agency (EPA) method Compendium I.O-4.2. Overall, producing gas phase PFAAs at constant atmospherically-relevant levels will enable the development of standard approaches in certifying gas and particle collection efficiencies for instruments interrogating the gas-particle partitioning and long-range transport of PFCAs in the atmosphere.

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LA - ENG

PT - JOURNAL ARTICLE

DEP - 20160418

TA - Analyst

JT - The Analyst

JID - 0372652

EDAT- 2016/04/19 06:00

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AID - 10.1039/c6an00313c [doi]

PST - aheadofprint

SO - Analyst. 2016 Apr 18.

PMID- 27094185

OWN - NLM

STAT- Publisher

DA - 20160420

LR - 20160421

IS - 1432-0614 (Electronic)

IS - 0175-7598 (Linking)

DP - 2016 Apr 19

TI - Screening of potential probiotic lactic acid bacteria based on gastrointestinal properties and perfluorooctanoate toxicity.

AB - The consumption of lactic acid bacteria capable of binding or degrading food-borne carcinogens may reduce human exposure to these deleterious compounds. In this study, 25 *Lactobacillus* strains isolated from human, plant, or dairy environments were investigated for their potential probiotic capacity against perfluorooctanoate (PFOA) toxicity. The PFOA binding, tolerance ability, and acid and bile salt tolerance were investigated and assessed by principal component analysis. Additionally, the effect of different pH levels and binding times was assessed. These strains exhibited different degrees of PFOA binding; the strain with the highest PFOA binding capability was *Lactobacillus plantarum* CCFM738, which bound to 49.40 +/- 1.5 % of available PFOA. This strain also exhibited relatively good cellular antioxidative properties, acid and bile salt tolerance, and adhesion to Caco-2 cells. This study suggests that *L. plantarum* CCFM738 could be used as a potential probiotic in food applications against PFOA toxicity.

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 LA - ENG
 PT - JOURNAL ARTICLE
 DEP - 20160419
 TA - Appl Microbiol Biotechnol
 JT - Applied microbiology and biotechnology
 JID - 8406612
 OTO - NOTNLM
 OT - Antioxidative activity
 OT - Binding capability
 OT - Lactic acid bacteria
 OT - Perfluorooctanoate
 OT - Toxicity
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 PHST- 2016/03/29 [revised]
 PHST- 2016/04/19 [aheadofprint]
 AID - 10.1007/s00253-016-7535-3 [doi]
 AID - 10.1007/s00253-016-7535-3 [pii]
 PST - aheadofprint
 SO - Appl Microbiol Biotechnol. 2016 Apr 19.

 PMID- 27082981
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160430
 IS - 1879-1514 (Electronic)
 IS - 0166-445X (Linking)
 VI - 175
 DP - 2016 Jun
 TI - Zebrafish reproductive toxicity induced by chronic perfluorononanoate exposure.
 PG - 269-76
 LID - 10.1016/j.aquatox.2016.04.005 [doi]
 LID - S0166-445X(16)30095-9 [pii]
 AB - Perfluoroalkyl acids (PFAAs) are a group of anthropogenic compounds that have

been widely used in consumer products for over 50 years. One of the most dominant PFAAs is perfluorononanoate (PFNA), a compound detected ubiquitously in aquatic ecosystems. While PFNA is suspected of being an endocrine disruptor, the mechanisms behind PFNA-induced reproductive disorders are poorly understood. The aim of this study was to investigate the reproduction-related effects and possible mechanisms of PFNA on adult zebrafish (*Danio rerio*) following 180 days of exposure at different concentrations (0.01, 0.1, 1mg/L). PFNA concentration in the gonads of zebrafish was tested by HPLC-MS/MS after chronic exposure to study possible inconsistent accumulation between the genders. The results showed that the accumulation of PFNA in the male gonads was almost one-fold higher than that in the female gonads, indicating a possible higher PFAA gonad burden for male zebrafish. Significant reductions in the male gonadosomatic index (GSI) and female egg production were observed. In addition, the decreased 72h hatching rate displayed an evident dosage effect, indicating that maternal exposure to PFNA might impair offspring developmental success. To investigate how PFNA exposure affects the hypothalamic-pituitary-gonadal-liver axis (HPGL axis), the transcriptional levels of genes were measured by real-time PCR. The disrupted expression of genes, such as ERalpha, ERbeta, FSHR, LHR, StAR, and 17betaHSD, indicated the possible interference of PFNA on the HPGL axis function and sex hormone synthesis. Furthermore, testosterone (T) and estradiol (E2) levels in serum and VTG content in the liver were detected to clarify the influences of PFNA on sex hormone levels. Except for the increase in serum estrogen levels, as an estrogen analogue, PFNA also induced the synthesis of biomarker protein vitellogenin (VTG) in the adult male liver. The results of this study indicate that chronic exposure to PFNA can lead to dysfunction in the HPGL axis and sex hormone synthesis and cause adverse effects on fish reproduction.

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LA - eng

PT - Journal Article

DEP - 20160405

PL - Netherlands

TA - Aquat Toxicol

JT - Aquatic toxicology (Amsterdam, Netherlands)

JID - 8500246

SB - IM

OTO - NOTNLM

OT - Perfluoroalkyl acids

OT - Reproductive toxicity

OT - VTG

OT - Zebrafish

EDAT- 2016/04/16 06:00

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PHST- 2016/04/05 [aheadofprint]

AID - S0166-445X(16)30095-9 [pii]

AID - 10.1016/j.aquatox.2016.04.005 [doi]

PST - ppublish

SO - Aquat Toxicol. 2016 Jun;175:269-76. doi: 10.1016/j.aquatox.2016.04.005. Epub 2016 Apr 5.

PMID- 27108203

OWN - NLM

STAT- In-Data-Review

DA - 20160525

IS - 1879-1514 (Electronic)

IS - 0166-445X (Linking)

VI - 176

DP - 2016 Jul

TI - Chronic perfluorooctane sulfonate (PFOS) exposure induces hepatic steatosis in zebrafish.

PG - 45-52

LID - 10.1016/j.aquatox.2016.04.013 [doi]

LID - S0166-445X(16)30103-5 [pii]

AB - Perfluorooctane sulfonate (PFOS), one persistent organic pollutant, has been widely detected in the environment, wildlife and human. Currently few studies have documented the effects of chronic PFOS exposure on lipid metabolism, especially in aquatic organisms. The underlying mechanisms of hepatotoxicity induced by chronic PFOS exposure are still largely unknown. The present study defined the effects of chronic exposure to low level of PFOS on lipid metabolism using zebrafish as a model system. Our findings revealed a severe hepatic steatosis in the liver of males treated with 0.5µM PFOS as evidenced by hepatosomatic index, histological assessment and liver lipid profiles. Quantitative PCR assay further indicated that PFOS significantly increase the transcriptional expression of nuclear receptors (nr1h3, rara, rxrgb, nr1l2) and the genes associated with fatty acid oxidation (acox1, acadm, cpt1a). In addition, chronic PFOS exposure significantly decreased liver ATP content and serum level of VLDL/LDL lipoprotein in males. Taken together, these findings suggest that chronic PFOS exposure induces hepatic steatosis in zebrafish via disturbing lipid biosynthesis, fatty acid beta-oxidation and excretion of VLDL/LDL lipoprotein, and also demonstrate the validity of using zebrafish as an alternative model for PFOS chronic toxicity screening.

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 LA - eng
 PT - Journal Article
 DEP - 20160416
 PL - Netherlands
 TA - Aquat Toxicol
 JT - Aquatic toxicology (Amsterdam, Netherlands)
 JID - 8500246
 SB - IM
 OTO - NOTNLM
 OT - Chronic exposure

OT - Lipid metabolism
 OT - PFOS
 OT - Zebrafish
 EDAT- 2016/04/25 06:00
 MHDA- 2016/04/25 06:00
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 PHST- 2016/03/08 [received]
 PHST- 2016/04/12 [revised]
 PHST- 2016/04/13 [accepted]
 PHST- 2016/04/16 [aheadofprint]
 AID - S0166-445X(16)30103-5 [pii]
 AID - 10.1016/j.aquatox.2016.04.013 [doi]
 PST - ppublish
 SO - Aquat Toxicol. 2016 Jul;176:45-52. doi: 10.1016/j.aquatox.2016.04.013. Epub 2016 Apr 16.

PMID- 25743374

OWN - NLM

STAT- In-Data-Review

DA - 20160310

IS - 1432-0738 (Electronic)

IS - 0340-5761 (Linking)

VI - 90

IP - 4

DP - 2016 Apr

TI - Perfluorooctanoic acid disrupts the blood-testis barrier and activates the TNFalpha/p38 MAPK signaling pathway in vivo and in vitro.

PG - 971-83

LID - 10.1007/s00204-015-1492-y [doi]

AB - Perfluorooctanoic acid (PFOA) is correlated with male reproductive dysfunction in animals and humans, but the underlying mechanisms for this remain unknown. To explore the potential reproductive toxicity of PFOA, we studied blood-testis barrier (BTB) damage using in vivo and in vitro models. Male mice were gavage-administered PFOA (0-20 mg/kg/d) for 28 consecutive days, and breeding capacity and permeability of the Sertoli cell-based BTB were estimated. Primary Sertoli cells (SCs) were exposed to PFOA (0-500 µM) for 48 h, and transepithelial electrical resistance (TER) was assessed. Furthermore, BTB-associated protein expression, TNFalpha content, and phosphorylation and protein levels of the mitogen-activated protein kinase (MAPK) pathway were detected. An apparent decrease in mated and pregnant females per male mouse as well as litter weight was observed. Marked BTB damage was evidenced by increased red biotin fluorescence in the lumen tubular of the testes and the decrease in TER in SCs in vitro. The protein levels of claudin-11, connexin-43, N-cadherin, beta-catenin, and occludin were significantly decreased in the testes and also in the SCs in vitro except for N-cadherin and beta-catenin. TNFalpha content showed a dose-dependent increase in the testes and a dose- and time-dependent increase in the SCs, with the p-p38/p38 MAPK ratio also increasing in testes and SCs after PFOA exposure. Moreover, PFOA altered expressions of claudin-11, connexin-43, TNFalpha, and p-p38 MAPK were recovered 48 h after PFOA removal in the SCs. The SCs appeared to be target to PFOA, and the disruption of the BTB may be crucial to PFOA-induced reproductive dysfunction in mice.

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 LA - eng
 PT - Journal Article
 DEP - 20150306
 PL - Germany
 TA - Arch Toxicol
 JT - Archives of toxicology
 JID - 0417615
 SB - IM
 OTO - NOTNLM
 OT - JNK
 OT - Male infertility
 OT - Perfluorooctanoic acid
 OT - Transforming growth factor beta3
 OT - p38 MAPK inhibitor
 EDAT- 2015/03/07 06:00
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 PHST- 2015/01/09 [received]
 PHST- 2015/02/23 [accepted]
 PHST- 2015/03/06 [aheadofprint]
 AID - 10.1007/s00204-015-1492-y [doi]
 AID - 10.1007/s00204-015-1492-y [pii]
 PST - ppublish
 SO - Arch Toxicol. 2016 Apr;90(4):971-83. doi: 10.1007/s00204-015-1492-y. Epub 2015 Mar 6.

 PMID- 26315986
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160324
 IS - 2151-4658 (Electronic)
 IS - 2151-464X (Linking)
 VI - 68
 IP - 4
 DP - 2016 Apr
 TI - Clinical Impact of Coexisting Patellofemoral Osteoarthritis in Japanese Patients With Medial Knee Osteoarthritis.
 PG - 493-501
 LID - 10.1002/acr.22691 [doi]
 AB - OBJECTIVE: To evaluate the clinical impact in knee osteoarthritis (OA) of coexisting patellofemoral (PF) joint OA (PFOA) in Japanese patients with medial tibiofemoral (TF) joint OA (TFOA). METHODS: Patients with medial knee OA (n = 143) were enrolled. The radiographic severity of the TF and PF joints, anatomic axis angle of the TF joint, patellar alignment, trochlear morphology, patellar

height, and passive range of motion (ROM) of the painful knee were evaluated. Additionally, the Japanese Knee Osteoarthritis Measure (JKOM) was used to investigate the association between the presence of PFOA and clinical symptoms. RESULTS: PFOA was present in 98 of 143 patients (68.5%) with medial knee OA. Quantile regression analysis revealed that coexisting PFOA was associated with the pain-related subcategory of the JKOM. Furthermore, multiple logistic regression analysis showed that coexisting PFOA was associated with higher odds of reporting knee pain on using stairs while ascending (odds ratio [OR] 4.81 [95% confidence interval (95% CI) 1.73, 14.3]) and descending (OR 3.86 [95% CI 1.44, 10.8]). A more varus knee alignment and lower knee flexion ROM, which are features of patients with coexisting PFOA, were associated with knee pain while ascending/descending stairs. However, patellar alignment, trochlear morphology, and patellar height were not significantly associated with knee pain. CONCLUSION: PFOA coexisting with medial knee OA was associated with worse clinical symptoms, particularly while ascending/descending stairs, although patellar alignment did not contribute to reporting knee pain. Further studies that include evaluation of the PF joint are warranted to develop a basis for an optimal intervention based on compartmental involvement.

CI - (c) 2016, American College of Rheumatology.

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LA - eng

PT - Journal Article

PL - United States

TA - Arthritis Care Res (Hoboken)

JT - Arthritis care & research

JID - 101518086

SB - IM

EDAT- 2015/09/01 06:00

MHDA- 2015/09/01 06:00

CRDT- 2015/08/29 06:00
 PHST- 2015/03/01 [received]
 PHST- 2015/07/29 [revised]
 PHST- 2015/08/11 [accepted]
 AID - 10.1002/acr.22691 [doi]
 PST - ppublish
 SO - Arthritis Care Res (Hoboken). 2016 Apr;68(4):493-501. doi: 10.1002/acr.22691.

PMID- 26978125

OWN - NLM

STAT- In-Data-Review

DA - 20160324

IS - 1757-6199 (Electronic)

IS - 1757-6180 (Linking)

VI - 8

IP - 7

DP - 2016 Apr

TI - Polar stir bars for isolation and preconcentration of perfluoroalkyl substances from human milk samples prior to UHPLC-MS/MS analysis.

PG - 633-47

LID - 10.4155/bio-2015-0009 [doi]

AB - BACKGROUND: A new method for the determination of four perfluoroalkyl carboxylic acids (from C5 to C8) and perfluorooctane sulfonate in human milk samples using stir-bar sorptive extraction-ultra-HPLC-MS/MS has been accurately optimized and validated. METHODOLOGY: Polydimethylsiloxane and polyethyleneglycol modified silicone materials were evaluated. DISCUSSION: Overall, polyethyleneglycol led to a better sensitivity. After optimizing experimental variables, the method was validated reaching detection limits in the range of 0.05-0.20 ng ml⁻¹; recovery rates from 81 to 105% and relative standard deviations fewer than 13% in all cases. The method was applied to milk samples from five randomly selected women. All samples were positive for at least one of the target compounds with concentrations ranging between 0.8 and 6.6 ng ml⁻¹, being the most abundant perfluorooctane sulfonate.

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LA - eng

PT - Journal Article

DEP - 20160315

PL - England

TA - Bioanalysis

JT - Bioanalysis

JID - 101512484

SB - IM

OTO - NOTNLM

OT - UHPLC-MS/MS

OT - endocrine disrupting chemicals

OT - human milk

OT - perfluoroalkyl substances

OT - sample preparation

OT - stir-bar sorptive extraction

EDAT- 2016/03/16 06:00

MHDA- 2016/03/16 06:00

CRDT- 2016/03/16 06:00

PHST- 2016/03/15 [aheadofprint]

AID - 10.4155/bio-2015-0009 [doi]

PST - ppublish

SO - Bioanalysis. 2016 Apr;8(7):633-47. doi: 10.4155/bio-2015-0009. Epub 2016 Mar 15.

PMID- 27095033

OWN - NLM

STAT- Publisher

DA - 20160420

LR - 20160421

IS - 1432-0800 (Electronic)

IS - 0007-4861 (Linking)

DP - 2016 Apr 19

TI - Chronic Exposure to Perfluorooctane Sulfonate Reduces Lifespan of *Caenorhabditis elegans* Through Insulin/IGF-1 Signaling.

AB - Perfluorooctane sulfonate (PFOS) is a persistent organic pollutant. Although multiple adverse effects of PFOS have been demonstrated, whether PFOS can accelerate aging and affect animal longevity remains unknown. In *Caenorhabditis elegans*, we found that a 50 h exposure to 0.2-200 microM PFOS reduced lifespan in a concentration dependent manner. In transgenic nematodes, lifespans are affected by mutations of *daf-16*, *daf-2* or *age-1* genes, which are related to the Insulin/IGF-1 Signaling pathway (IIS). PFOS exposure caused an additional reduction in average lifespan in *daf-2(e1370)* and *daf-16b(KO)* nematodes. In contrast, *daf-16(mu86)* nematodes showed no additional reduction with PFOS exposure and *age-1(hx546)* mutants did not exhibit a reduction in lifespan with PFOS exposure, compared with wildtype nematodes. Overall, our findings demonstrate that PFOS exposure accelerates aging and shortens longevity of animals. The PFOS-induced effect may involve genes of the IIS pathway, particularly *daf-16* and *age-1*.

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 LA - ENG
 PT - JOURNAL ARTICLE
 DEP - 20160419
 TA - Bull Environ Contam Toxicol
 JT - Bulletin of environmental contamination and toxicology
 JID - 0046021
 OTO - NOTNLM
 OT - Age-1
 OT - Caenorhabditis elegans
 OT - Daf-16
 OT - IIS signaling
 OT - Lifespan
 OT - Perfluorooctane sulfonate
 EDAT- 2016/04/21 06:00
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 CRDT- 2016/04/21 06:00
 PHST- 2015/12/01 [received]
 PHST- 2016/04/12 [accepted]
 PHST- 2016/04/19 [aheadofprint]
 AID - 10.1007/s00128-016-1808-5 [doi]
 AID - 10.1007/s00128-016-1808-5 [pii]
 PST - aheadofprint
 SO - Bull Environ Contam Toxicol. 2016 Apr 19.

 PMID- 27063553
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160421
 IS - 1364-548X (Electronic)
 IS - 1359-7345 (Linking)
 VI - 52
 IP - 35
 DP - 2016 May 21
 TI - Radical perfluoroalkylation - easy access to 2-perfluoroalkylindol-3-imines via electron catalysis.
 PG - 5997-6000

LID - 10.1039/c6cc02284g [doi]

AB - Arylisonitriles (2 equivalents) react with alkyl and perfluoroalkyl radicals to form 2-alkylated indole-3-imines via two sequential additions to the isonitrile moiety followed by homolytic aromatic substitution. The three component reaction comprises three C-C bond formations. The endocyclic imine functionality in the products is more reactive in follow up chemistry and hydrolysis of the exocyclic imine leads to 3-oxindoles that show fluorescence properties.

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AU - Studer A

LA - eng

PT - Journal Article

DEP - 20160411

PL - England

TA - Chem Commun (Camb)

JT - Chemical communications (Cambridge, England)

JID - 9610838

SB - IM

EDAT- 2016/04/12 06:00

MHDA- 2016/04/12 06:00

CRDT- 2016/04/12 06:00

PHST- 2016/04/11 [aheadofprint]

PHST- 2016/04/21 [epublish]

AID - 10.1039/c6cc02284g [doi]

PST - ppublish

SO - Chem Commun (Camb). 2016 May 21;52(35):5997-6000. doi: 10.1039/c6cc02284g. Epub 2016 Apr 11.

PMID- 26969042

OWN - NLM

STAT- In-Data-Review

DA - 20160422

IS - 1528-0691 (Electronic)

IS - 1528-0691 (Linking)

VI - 16

IP - 2

DP - 2016 Apr

TI - Synthesis of Organofluoro Compounds Using Methyl Perfluoroalk-2-ynoates as Building Blocks.

PG - 907-23

LID - 10.1002/tcr.201500258 [doi]

AB - This review provides an overview of several synthetic applications of methyl perfluoroalk-2-ynoates, leading to convenient preparation of many perfluoroalkylated compounds. The use of these important substrates in the synthesis of various five-, six-, and seven-membered heterocycles,

cyclopentadienes, and biphenyls is described, alongside a discussion of the mechanistic aspects of these reactions.

CI - (c) 2016 The Chemical Society of Japan & Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim.

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LA - eng

PT - Journal Article

DEP - 20160310

PL - United States

TA - Chem Rec

JT - Chemical record (New York, N.Y.)

JID - 101085550

SB - IM

OTO - NOTNLM

OT - Michael addition

OT - drug design

OT - fluorine

OT - perfluoroalkyl groups

OT - synthetic methods

EDAT- 2016/03/13 06:00

MHDA- 2016/03/13 06:00

CRDT- 2016/03/13 06:00

PHST- 2015/10/20 [received]

PHST- 2016/03/10 [aheadofprint]

AID - 10.1002/tcr.201500258 [doi]

PST - ppublish

SO - Chem Rec. 2016 Apr;16(2):907-23. doi: 10.1002/tcr.201500258. Epub 2016 Mar 10.

PMID- 27078751

OWN - NLM

STAT- In-Data-Review

DA - 20160516

LR - 20160520

IS - 1520-5010 (Electronic)

IS - 0893-228X (Linking)

VI - 29

IP - 5

DP - 2016 May 16

TI - Perfluoroalkylated Substance Effects in *Xenopus laevis* A6 Kidney Epithelial Cells Determined by ATR-FTIR Spectroscopy and Chemometric Analysis.

PG - 924-32

LID - 10.1021/acs.chemrestox.6b00076 [doi]

AB - The effects of four perfluoroalkylated substances (PFASs), namely, perfluorobutanesulfonate (PFBS), perfluorooctanoic acid (PFOA), perfluorooctanesulfonate (PFOS), and perfluorononanoic acid (PFNA) were assessed in *Xenopus laevis* A6 kidney epithelial cells by attenuated total reflection Fourier-transform infrared (ATR-FTIR) spectroscopy and chemometric analysis. Principal component analysis-linear discriminant analysis (PCA-LDA) was used to visualize wavenumber-related alterations and ANOVA-simultaneous component analysis (ASCA) allowed data processing considering the underlying experimental design. Both analyses evidenced a higher impact of low-dose PFAS-treatments (10(-9) M) on A6 cells forming monolayers, while there was a larger influence of high-dose PFAS-treatments (10(-5) M) on A6 cells differentiated into dome structures. The observed dose-response PFAS-induced effects were to some extent related to their cytotoxicity: the EC50-values of most influential PFAS-treatments increased (PFOS < PFNA < PFOA << PFBS), and higher-doses of these chemicals induced a larger impact. Major spectral alterations were mainly attributed to DNA/RNA, secondary protein structure, lipids, and fatty acids. Finally, PFOS and PFOA caused a decrease in A6 cell numbers compared to controls, whereas PFBS and PFNA did not significantly change cell population levels. Overall, this work highlights the ability of PFASs to alter A6 cells, whether forming monolayers or differentiated into dome structures, and the potential of PFOS and PFOA to induce cell death.

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LA - eng
 PT - Journal Article
 DEP - 20160425
 PL - United States
 TA - Chem Res Toxicol
 JT - Chemical research in toxicology
 JID - 8807448
 SB - IM
 PMC - PMC4870675
 OID - NLM: PMC4870675
 EDAT- 2016/04/15 06:00
 MHDA- 2016/04/15 06:00
 CRDT- 2016/04/15 06:00
 PHST- 2016/04/25 [aheadofprint]
 AID - 10.1021/acs.chemrestox.6b00076 [doi]
 PST - ppublish
 SO - Chem Res Toxicol. 2016 May 16;29(5):924-32. doi: 10.1021/acs.chemrestox.6b00076.
 Epub 2016 Apr 25.

PMID- 27061205
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160512
 IS - 1521-3765 (Electronic)
 IS - 0947-6539 (Linking)
 VI - 22
 IP - 21
 DP - 2016 May 17
 TI - Highly Enantioselective Fluorescent Recognition of Both Unfunctionalized and Functionalized Chiral Amines by a Facile Amide Formation from a Perfluoroalkyl Ketone.
 PG - 7255-61
 LID - 10.1002/chem.201600238 [doi]
 AB - The H8 BINOL-based perfluoroalkyl ketone (S)-2 is found to exhibit highly enantioselective fluorescent enhancements toward both unfunctionalized and functionalized chiral amines. It greatly expands the substrate scope of the corresponding BINOL-based sensor. A dramatic solvent effect was observed for the reaction of the amines with compound (S)-2. In DMF, cleavage of the perfluoroalkyl group of compound (S)-2 to form amides was observed but not in other solvents, such as methylene chloride, chloroform, THF, hexane, and perfluorohexane. Thus, the addition of another solvent, such as THF, can effectively quench the reaction of compound (S)-2 with amines in DMF to allow stable fluorescent measurement. This is the first example that the formation of strong amide bonds under very mild conditions is used for the enantioselective recognition of chiral amines. The mechanism of the reaction of compound (S)-2 with chiral amines is investigated by using various analytical methods including mass spectrometry as well as NMR and UV/Vis absorption spectroscopy.
 CI - (c) 2016 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.
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 LA - eng
 PT - Journal Article
 DEP - 20160409
 PL - Germany
 TA - Chemistry
 JT - Chemistry (Weinheim an der Bergstrasse, Germany)
 JID - 9513783
 SB - IM
 OTO - NOTNLM
 OT - 1,1'-bi-2-naphthol
 OT - amides
 OT - chiral amines
 OT - fluorescent sensors
 OT - perfluoroalkyl ketones
 EDAT- 2016/04/12 06:00
 MHDA- 2016/04/12 06:00
 CRDT- 2016/04/11 06:00
 PHST- 2016/01/19 [received]
 PHST- 2016/04/09 [aheadofprint]
 AID - 10.1002/chem.201600238 [doi]
 PST - ppublish
 SO - Chemistry. 2016 May 17;22(21):7255-61. doi: 10.1002/chem.201600238. Epub 2016 Apr
 9.

PMID- 26933840
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160420
 IS - 1521-3765 (Electronic)
 IS - 0947-6539 (Linking)
 VI - 22
 IP - 18
 DP - 2016 Apr 25
 TI - Photocatalytic/Cu-Promoted C-H Activations: Visible-light-Induced ortho-Selective
 Perfluoroalkylation of Benzamides.
 PG - 6218-22
 LID - 10.1002/chem.201600229 [doi]
 AB - A visible-light-induced and copper-promoted perfluoroalkylation of benzamides was
 successfully developed under the assistance of an 8-aminoquinoline directing
 group. It provides a straightforward method for the synthesis of
 ortho-perfluoroalkyl-substituted benzoic acid derivatives. The reaction employs a
 cheap organic dye eosin Y as the photoredox catalyst and is run under the
 irradiation of a 26 W fluorescent LED light bulb.
 CI - (c) 2016 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.
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LA - eng

PT - Journal Article

DEP - 20160316

PL - Germany

TA - Chemistry

JT - Chemistry (Weinheim an der Bergstrasse, Germany)

JID - 9513783

SB - IM

OTO - NOTNLM

OT - Cu-promoted

OT - C-H activation

OT - chelation-assisted

OT - perfluoroalkylation

OT - photocatalysis

EDAT- 2016/03/05 06:00

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SO - Chemistry. 2016 Apr 25;22(18):6218-22. doi: 10.1002/chem.201600229. Epub 2016 Mar 16.

PMID- 27139122

OWN - NLM

STAT- In-Data-Review

DA - 20160522

IS - 1879-1298 (Electronic)

IS - 0045-6535 (Linking)

VI - 155

DP - 2016 Jul

TI - Transcriptional changes in steroidogenesis by perfluoroalkyl acids (PFOA and PFOS) regulate the synthesis of sex hormones in H295R cells.

PG - 436-43

LID - 10.1016/j.chemosphere.2016.04.070 [doi]

LID - S0045-6535(16)30552-5 [pii]

AB - Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are two of the most widely used perfluoroalkyl acids (PFAAs). Because of their strong persistence, they have become widely distributed throughout the environment and human bodies. PFOA and PFOS are suspected to disrupt the endocrine system based upon many in vivo studies, but the underlying mechanisms are currently unclear. In this study, we investigated the endocrine-related effects of PFOA and PFOS using in vitro estrogen receptor (ER) and androgen receptor (AR) transactivation assays and steroidogenesis assay. The results showed that PFOA and PFOS exhibited weak antagonistic ER transactivation but did not exhibit agonistic ER or AR transactivation. In the steroidogenesis assay, PFOA and PFOS induced 17 β -estradiol (E2) level and reduced testosterone level, which would be caused by the induction of aromatase activity. The qPCR analysis of genes involved in steroidogenesis indicates that PFOA and PFOS associate with sex hormone synthesis by the transcriptional induction of two genes, *cyp19* and *3 β -hsd2*. Moreover, the transcriptional induction of *cyp11b2* by PFOS suggests that this chemical may underlie the disruption of several physiological functions related to aldosterone. The results of the current study suggest that PFOA and PFOS are potential endocrine disrupting chemicals (EDCs) and provide information for further studies on the molecular events that initiate the adverse endocrine effects.

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LA - eng

PT - Journal Article

DEP - 20160430

PL - England

TA - Chemosphere

JT - Chemosphere

JID - 0320657

SB - IM

OTO - NOTNLM

OT - Aromatase

OT - ER/AR transactivation

OT - Endocrine disruptor chemical

OT - Perfluorooctane sulfonate

OT - Perfluorooctanoic acid

OT - Steroidogenesis

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 PHST- 2016/04/30 [aheadofprint]
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 SO - Chemosphere. 2016 Jul;155:436-43. doi: 10.1016/j.chemosphere.2016.04.070. Epub 2016 Apr 30.

PMID- 27139118

OWN - NLM

STAT- In-Data-Review

DA - 20160522

IS - 1879-1298 (Electronic)

IS - 0045-6535 (Linking)

VI - 155

DP - 2016 Jul

TI - Potential exposure routes and accumulation kinetics for poly- and perfluorinated alkyl compounds for a freshwater amphipod: *Gammarus* spp. (Crustacea).

PG - 380-7

LID - 10.1016/j.chemosphere.2016.04.006 [doi]

LID - S0045-6535(16)30480-5 [pii]

AB - Gammarids were exposed to sediments from a deposition site located on the Rhone River (France) downstream of a fluoropolymer manufacturing plant. Gammarids accumulated to various extents four long-chain perfluoroalkyl carboxylic acids (PFCAs) from C9 to C13, one sulfonate, perfluorooctane sulfonate (PFOS) and three of its precursors (the perfluorooctane sulfonamide (FOSA), the N-methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA), the N-ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) and the 6:2 fluorotelomer sulfonic acid (6:2 FTSA). Whatever the compound, the steady state was not achieved after a 3-week exposure; elimination was almost complete after a 3-week depuration period for perfluorononanoic acid (PFNA), PFOS, the three precursors and the 6:2FTSA. However, this was not the case for long-chain PFCAs, whose elimination rates decreased with increasing chain length. PFAS accumulation in gammarids occurred via the trophic and respiratory pathways, in proportions varying with the carbon chain length and the terminal moiety.

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 LA - eng
 PT - Journal Article
 DEP - 20160430
 PL - England
 TA - Chemosphere
 JT - Chemosphere
 JID - 0320657
 SB - IM
 OTO - NOTNLM
 OT - BSAF
 OT - Clearance
 OT - Exposure route
 OT - Gammarus spp.
 OT - Perfluorinated compounds
 OT - Sediment
 OT - Uptake rate
 EDAT- 2016/05/04 06:00
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 2016 Apr 30.
 PMID- 27108369
 OWN - NLM

STAT- In-Data-Review

DA - 20160522

IS - 1879-1298 (Electronic)

IS - 0045-6535 (Linking)

VI - 155

DP - 2016 Jul

TI - Perfluorooctane sulfonate exposure causes gonadal developmental toxicity in *Caenorhabditis elegans* through ROS-induced DNA damage.

PG - 115-26

LID - 10.1016/j.chemosphere.2016.04.046 [doi]

LID - S0045-6535(16)30520-3 [pii]

AB - Perfluorooctane sulfonate (PFOS), a common persistent organic pollutant, has been reported to show potential developmental toxicity in many animal studies.

However, little was known about its effects on reproductive tissues, especially in the germ line. In the present study, *Caenorhabditis elegans* was used as an in vivo experimental model to study the developmental toxicity caused by PFOS exposure, especially in the gonads. Our results showed that PFOS exposure significantly retarded gonadal development, as shown by the increased number of worms that remained in the larval stages after hatched L1-stage larvae were exposed to PFOS for 72 h. Investigation of germ line proliferation following PFOS exposure showed that the number of total germ cells reduced in a dose-dependent manner when L1-stage larvae were exposed to 0-25.0 μ M PFOS. PFOS exposure induced transient mitotic cell cycle arrest and apoptosis in the germ line.

Quantification of DNA damage in proliferating germ cells and production of reactive oxygen species (ROS) showed that distinct foci of HUS-1:GFP and ROS significantly increased in the PFOS-treated groups, whereas the decrease in mitotic germ cell number and the enhanced apoptosis induced by PFOS exposure were effectively rescued upon addition of dimethyl sulfoxide (DMSO) and mannitol (MNT). These results suggested that ROS-induced DNA damage might play a pivotal role in the impairment of gonadal development indicated by the reduction in total germ cells, transient mitotic cell cycle arrest, and apoptosis.

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LA - eng

PT - Journal Article

DEP - 20160422

PL - England

TA - Chemosphere

JT - Chemosphere

JID - 0320657

SB - IM

OTO - NOTNLM

OT - Caenorhabditis elegans

OT - DNA damage

OT - Gonadal development

OT - Perfluorooctane sulfonate (PFOS)

OT - Reactive oxygen species (ROS)

EDAT- 2016/04/25 06:00

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AID - 10.1016/j.chemosphere.2016.04.046 [doi]

PST - ppublish

SO - Chemosphere. 2016 Jul;155:115-26. doi: 10.1016/j.chemosphere.2016.04.046. Epub 2016 Apr 22.

PMID- 27058914

OWN - NLM

STAT- In-Data-Review

DA - 20160502

IS - 1879-1298 (Electronic)

IS - 0045-6535 (Linking)

VI - 154

DP - 2016 Jul

TI - Biotransformation potential of 6:2 fluorotelomer sulfonate (6:2 FTSA) in aerobic and anaerobic sediment.

PG - 224-30

LID - 10.1016/j.chemosphere.2016.03.062 [doi]

LID - S0045-6535(16)30377-0 [pii]

AB - Aqueous film-forming foam (AFFF) products are used in industrial and military firefighting around the globe. These products contain fluoroalkylthioamido sulfonates, fluoroalkylthiobetaine, and other related substances as the major ingredients, which can be biotransformed in the environment to form 6:2 fluorotelomer sulfonate (6:2 FTSA, $F(CF_2)_6CH_2CH_2SO_3^-$) as one of the major initial biotransformation products. Limited information is available on 6:2 FTSA aerobic biotransformation in activated sludge and pure microbial culture. This is the first study to report 6:2 FTSA biotransformation in aerobic and anaerobic sediment. 6:2 FTSA was rapidly biotransformed in aerobic river sediment with a half-life less than 5 d. Major stable transformation products observed after 90 d included 5:3 Acid [$F(CF_2)_5CH_2CH_2COOH$], 16 mol%), PFPeA [$F(CF_2)_4COOH$, 21 mol%] and PFHxA [$F(CF_2)_5COOH$, 20 mol%]. 6:2 fluorotelomer alcohol [6:2 FTOH, $F(CF_2)_6CH_2CH_2OH$] was readily biotransformed whereas 6:2 FTSA biotransformation did not occur in anaerobic sediment over 100 d, indicating that the enzymatic desulfonation step limited 6:2 FTSA biotransformation in anaerobic sediment. These results suggest that 6:2 FTSA related products, after release to the aerobic environment, is likely to biodegrade forming 5:3 Acid, PFPeA and PFHxA. This study also indicates that 6:2 FTSA formed from its aforementioned precursors may be persistent in the anaerobic environment after their potential release. This work provides insight to understanding the fate and environmental loading of AFFF-related products and their major transformation products in the environment.

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LA - eng

PT - Journal Article

DEP - 20160406

PL - England

TA - Chemosphere

JT - Chemosphere

JID - 0320657

SB - IM

OTO - NOTNLM

OT - 5:3 Acid

OT - 6:2 fluorotelomer alcohol (6:2 FTOH)

OT - 6:2 fluorotelomer sulfonate (6:2 FTSA)

OT - Biotransformation

OT - Perfluorocarboxylic acids (PFCAs)

OT - Sediment

EDAT- 2016/04/09 06:00

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 SO - Chemosphere. 2016 Jul;154:224-30. doi: 10.1016/j.chemosphere.2016.03.062. Epub 2016 Apr 6.

PMID- 26874062

OWN - NLM

STAT- In-Data-Review

DA - 20160227

IS - 1879-1298 (Electronic)

IS - 0045-6535 (Linking)

VI - 149

DP - 2016 Apr

TI - Aquatic hazard, bioaccumulation and screening risk assessment for ammonium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)-propanoate.

PG - 336-42

LID - 10.1016/j.chemosphere.2016.01.009 [doi]

LID - S0045-6535(16)30009-1 [pii]

AB - The fluoropolymer manufacturing industry is moving to alternative polymerization processing aid technologies with more favorable toxicological and environmental profiles as part of a commitment to curtail the use of long-chain perfluoroalkyl acids (PFAAs). To facilitate the environmental product stewardship assessment and premanufacture notification (PMN) process for a candidate replacement chemical, we conducted acute and chronic aquatic toxicity tests to evaluate the toxicity of ammonium 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)-propanoate (C₆H₁₁FO₃N) or the acid form of the substance to the cladoceran, *Daphnia magna*, the green alga, *Pseudokirchneriella subcapitata*, and a number of freshwater fish species including the rainbow trout, *Oncorhynchus mykiss*. In addition, testing with the common carp, *Cyprinus carpio*, was conducted to determine the bioconcentration potential of the acid form of the compound. Based on the relevant criteria in current regulatory frameworks, the results of the aquatic toxicity and bioconcentration studies indicate the substance is of low concern for aquatic hazard and bioconcentration in aquatic organisms. Evaluation of environmental monitoring data in conjunction with the predicted no effect concentration (PNEC) based on the available data suggest low risk to aquatic organisms.

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 LA - eng
 PT - Journal Article
 DEP - 20160211
 PL - England
 TA - Chemosphere
 JT - Chemosphere
 JID - 0320657
 SB - IM
 OTO - NOTNLM
 OT - Aquatic toxicity
 OT - Bioconcentration
 OT - Hazard assessment
 OT - Perfluoroalkyl substances
 OT - Risk assessment
 EDAT- 2016/02/14 06:00
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 AID - S0045-6535(16)30009-1 [pii]
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 PST - ppublish
 SO - Chemosphere. 2016 Apr;149:336-42. doi: 10.1016/j.chemosphere.2016.01.009. Epub 2016 Feb 11.

PMID- 26826296
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160227
 IS - 1879-1298 (Electronic)
 IS - 0045-6535 (Linking)
 VI - 149
 DP - 2016 Apr
 TI - AMP-activated protein kinase is involved in perfluorohexanesulfonate -induced apoptosis of neuronal cells.
 PG - 1-7
 LID - 10.1016/j.chemosphere.2016.01.073 [doi]
 LID - S0045-6535(16)30073-X [pii]
 AB - Perfluorohexanesulfonate (PFHxS), one of the major perfluoroalkyl compounds (PFCs), has been used in a variety of industrial and consumer applications and detected in serum in the general population. This raised a concern over its possible detrimental health effects, including neurotoxic effects. We have previously shown that PFHxS induced neuronal apoptosis via the NMDA receptor-mediated extracellular signal-regulated kinase (ERK) pathway. Recently, it has been reported that AMP-activated protein kinase (AMPK) acts as a key signal molecule in neuronal excitotoxicity as well as providing a neuroprotective function. In the present study, we have examined the involvement of AMPK in PFHxS-induced neuronal apoptosis using neuronal differentiated PC12 cells. PFHxS induced significant increases in intracellular [Ca(2+)] via the NMDA receptor and

the L-type voltage-gated calcium channel (L-VGCC). The inhibition of Ca(2+) loading by the NMDA receptor antagonist, MK801 and the L-VGCC blockers, nifedipine and diltiazem significantly reduced PFHxS-induced apoptosis. PFHxS induced sustained activation of AMPK and the inhibition of AMPK activation by compound C and AMPK siRNA significantly reduced PFHxS-induced caspase-3 activity. These results indicate the pro-apoptotic role of AMPK. The activation of AMPK was attenuated by MK801, nifedipine and diltiazem. However, the activation of AMPK was not affected by the ERK inhibitor, PD98059. Likewise, ERK activation was not affected by compound C but was substantially reduced by MK801, nifedipine or diltiazem. This suggests that the activation of AMPK and ERK is regulated by intracellular Ca(2+) loading in distinct pathways. Taken together, PFHxS-induced neuronal apoptosis is mediated by AMPK and ERK pathways, which are distinctly regulated by increased intracellular Ca(2+) via the NMDA receptor and L-VGCC.

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LA - eng

PT - Journal Article

DEP - 20160127

PL - England

TA - Chemosphere

JT - Chemosphere

JID - 0320657

SB - IM

OTO - NOTNLM

OT - AMPK

OT - Apoptosis

OT - L-type voltage-gated calcium channel

OT - NMDA receptor

OT - PC12 cell

OT - Perfluorohexanesulfonate

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CRDT- 2016/01/31 06:00

PHST- 2015/07/24 [received]

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AID - 10.1016/j.chemosphere.2016.01.073 [doi]

PST - ppublish

SO - Chemosphere. 2016 Apr;149:1-7. doi: 10.1016/j.chemosphere.2016.01.073. Epub 2016 Jan 27.

PMID- 26764109

OWN - NLM

STAT- In-Data-Review

DA - 20160213

IS - 1873-4367 (Electronic)

IS - 0927-7765 (Linking)

VI - 140

DP - 2016 Apr 1

TI - Coating morphology and surface composition of acrylic terpolymers with pendant catechol, OEG and perfluoroalkyl groups in varying ratio and the effect on protein adsorption.

PG - 254-61

LID - 10.1016/j.colsurfb.2015.12.051 [doi]

LID - S0927-7765(15)30399-4 [pii]

AB - This work aims at developing versatile low-biofouling polymeric coatings by using acrylic terpolymers (DOFs) that bear pendant catechol (D), oligo(ethylene glycol) (O), and perfluoroalkyl (F) groups in varying ratios. The polymers were endowed with the ability to form firmly coatings on virtually any surfaces and undergo surface microphase separation and self-assembly, as revealed by the surface enrichment of F pendants and the morphology variation from irregular solid domains to discrete crater-type aggregates of different size. The effect on protein adsorption was investigated using bovine serum albumin (BSA) and adhesive fibrinogen (Fib) as model proteins. The coating of DOF164 (low F content), which has morphology of discrete crater-type aggregates of approximately 400nm in size, adsorbed a least amount of protein but with a highest protein unit activity as determined by SPR and immunosorbent assay; whereas the coating of DOF1612 (high F content) showed a 12.3-fold higher adsorption capacity toward Fib. Interestingly, a 2.2-fold lower adsorption amount but with a 1.8-fold higher unit activity was found for Fib adsorbed on the DOF164 surface than on DOF250 (without F fraction), whose OEG segments being a widely recognized protein compatible material. The features of the DOF164 terpolymer presenting a robust coating ability and a minimal protein adsorption capacity while with a high protein unit activity suggest its potential application as a non-fouling surface-modifier for medical antifouling coatings and as a matrix material for selective protein immobilization and activity preservation in biosensor construction.

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LA - eng
 PT - Journal Article
 DEP - 20151231
 PL - Netherlands
 TA - Colloids Surf B Biointerfaces
 JT - Colloids and surfaces. B, Biointerfaces
 JID - 9315133
 SB - IM
 OTO - NOTNLM
 OT - Antifouling
 OT - Catechol
 OT - Dopamine
 OT - Morphology
 OT - Perfluoroalkyl
 OT - Poly(ethylene glycol)
 OT - Protein adsorption
 OT - Terpolymer
 EDAT- 2016/01/15 06:00
 MHDA- 2016/01/15 06:00
 CRDT- 2016/01/15 06:00
 PHST- 2015/08/20 [received]
 PHST- 2015/12/03 [revised]
 PHST- 2015/12/27 [accepted]
 PHST- 2015/12/31 [aheadofprint]
 AID - S0927-7765(15)30399-4 [pii]
 AID - 10.1016/j.colsurfb.2015.12.051 [doi]
 PST - ppublish
 SO - Colloids Surf B Biointerfaces. 2016 Apr 1;140:254-61. doi:
 10.1016/j.colsurfb.2015.12.051. Epub 2015 Dec 31.

PMID- 26761418
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160311
 LR - 20160423
 IS - 1547-6898 (Electronic)
 IS - 1040-8444 (Linking)
 VI - 46
 IP - 4
 DP - 2016 Apr
 TI - A critical review of perfluorooctanoate and perfluorooctanesulfonate exposure and immunological health conditions in humans.
 PG - 279-331
 LID - 10.3109/10408444.2015.1122573 [doi]
 AB - Whether perfluorooctanoate (PFOA) and perfluorooctanesulfonate (PFOS), two widely used and biopersistent synthetic chemicals, are immunotoxic in humans is unclear. Accordingly, this article systematically and critically reviews the epidemiologic evidence on the association between exposure to PFOA and PFOS and various immune-related health conditions in humans. Twenty-four epidemiologic studies have reported associations of PFOA and/or PFOS with immune-related health conditions, including ten studies of immune biomarker levels or gene expression patterns, ten studies of atopic or allergic disorders, five studies of infectious diseases, four studies of vaccine responses, and five studies of chronic inflammatory or autoimmune conditions (with several studies evaluating multiple endpoints). Asthma, the most commonly studied condition, was evaluated in seven studies. With few, often methodologically limited studies of any particular

health condition, generally inconsistent results, and an inability to exclude confounding, bias, or chance as an explanation for observed associations, the available epidemiologic evidence is insufficient to reach a conclusion about a causal relationship between exposure to PFOA and PFOS and any immune-related health condition in humans. When interpreting such studies, an immunodeficiency should not be presumed to exist when there is no evidence of a clinical abnormality. Large, prospective studies with repeated exposure assessment in independent populations are needed to confirm some suggestive associations with certain endpoints.

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LA - eng

PT - Journal Article

DEP - 20160113

PL - England

TA - Crit Rev Toxicol

JT - Critical reviews in toxicology

JID - 8914275

SB - IM

PMC - PMC4819831

OID - NLM: PMC4819831

OTO - NOTNLM

OT - Asthma

OT - CAS No. 1763-23-1

OT - CAS No. 335-67-1

OT - autoimmune diseases

OT - epidemiology

OT - hypersensitivity

OT - immune system

OT - immunization

OT - immunological factors

OT - infection

OT - perfluoroalkyl substances

OT - polyfluoroalkyl substances

EDAT- 2016/01/14 06:00

MHDA- 2016/01/14 06:00

CRDT- 2016/01/14 06:00

PHST- 2016/01/13 [aheadofprint]

AID - 10.3109/10408444.2015.1122573 [doi]

PST - ppublish

SO - Crit Rev Toxicol. 2016 Apr;46(4):279-331. doi: 10.3109/10408444.2015.1122573.

Epub 2016 Jan 13.

PMID- 27114043

OWN - NLM

STAT- In-Data-Review

DA - 20160518

IS - 1477-9234 (Electronic)

IS - 1477-9226 (Linking)

VI - 45

IP - 20

DP - 2016 May 28

TI - A class of effective decarboxylative perfluoroalkylating reagents:

[(phen)2Cu](O2CRF).

PG - 8468-74

LID - 10.1039/c6dt00277c [doi]

AB - This article describes the invention of a class of effective reagents

[(phen)2Cu](O2CRF) (1) for the decarboxylative perfluoroalkylation of aryl and heteroaryl halides. Treatment of copper tert-butyloxide with phenanthroline ligands, with subsequent addition of perfluorocarboxylic acids afforded air-stable copper(i) perfluorocarboxylate complexes 1. These complexes reacted with a variety of aryl and heteroaryl halides to form perfluoroalkyl(hetero)arenes in moderate to high yields. Computational studies suggested that the coordination of the second phen ligand may reduce the energy barrier for the decarboxylation of perfluorocarboxylate to facilitate perfluoroalkylation.

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AU - Weng Z

LA - eng

PT - Journal Article

DEP - 20160426

PL - England

TA - Dalton Trans

JT - Dalton transactions (Cambridge, England : 2003)

JID - 101176026

SB - IM

EDAT- 2016/04/27 06:00

MHDA- 2016/04/27 06:00

CRDT- 2016/04/27 06:00

PHST- 2016/04/26 [aheadofprint]

PHST- 2016/05/17 [epublish]

AID - 10.1039/c6dt00277c [doi]

PST - ppublish

SO - Dalton Trans. 2016 May 28;45(20):8468-74. doi: 10.1039/c6dt00277c. Epub 2016 Apr

26.

PMID- 26761781

OWN - NLM

STAT- In-Process

DA - 20160205

IS - 1090-2414 (Electronic)

IS - 0147-6513 (Linking)

VI - 126

DP - 2016 Apr

TI - Responses of antioxidant defense system to polyfluorinated dibenzo-p-dioxins (PFDDs) exposure in liver of freshwater fish *Carassius auratus*.

PG - 170-6

LID - 10.1016/j.ecoenv.2015.12.036 [doi]

LID - S0147-6513(15)30226-8 [pii]

AB - In this study, we evaluated the toxicity of ten polyfluorinated dibenzo-p-dioxins (PFDDs) congeners to freshwater fish *Carassius auratus*, by determining the antioxidative responses and lipid peroxidation in the liver after the fish were injected with two different concentrations (10 and 100 micromol/kg) of individual PFDDs for 3 and 14 days. The results showed that oxidative stress was obviously induced in some PFDDs-treated groups, as implied by the significantly inhibited antioxidants levels (superoxide dismutase, catalase, reduced glutathione, and glutathione S-transferase) and elevated malondialdehyde content. In addition, the oxidative stress inducing ability was variable for different PFDDs congeners, which was related with the substitution number and position of fluorine atom. Based on the calculated integrated biomarker response (IBR) values, the toxicity was ranked as 2,3,7,8-FDD>Octa-FDD>1,2,3,4,7-FDD>1,3,6,8-FDD>1,2,3,4,6,7-FDD>1,2,6,7-FDD>1,2,7-FDD>DD>2,7-FDD>2-FDD. This study can enhance the general understanding of the PFDDs induced oxidative stress in aquatic organisms.

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LA - eng

PT - Journal Article

PT - Research Support, Non-U.S. Gov't

DEP - 20160104

PL - United States
 TA - Ecotoxicol Environ Saf
 JT - Ecotoxicology and environmental safety
 JID - 7805381
 SB - IM
 OTO - NOTNLM
 OT - Carassius auratus
 OT - Integrated biomarker response
 OT - Oxidative stress
 OT - Polyfluorinated dibenzo-p-dioxins
 OT - Toxicity order
 EDAT- 2016/01/14 06:00
 MHDA- 2016/01/14 06:00
 CRDT- 2016/01/14 06:00
 PHST- 2015/10/23 [received]
 PHST- 2015/12/28 [revised]
 PHST- 2015/12/28 [accepted]
 PHST- 2016/01/04 [aheadofprint]
 AID - S0147-6513(15)30226-8 [pii]
 AID - 10.1016/j.ecoenv.2015.12.036 [doi]
 PST - ppublish
 SO - Ecotoxicol Environ Saf. 2016 Apr;126:170-6. doi: 10.1016/j.ecoenv.2015.12.036.
 Epub 2016 Jan 4.

PMID- 27137816

OWN - NLM

STAT- Publisher

DA - 20160503

LR - 20160504

IS - 1347-4715 (Electronic)

IS - 1342-078X (Linking)

DP - 2016 Apr 30

TI - Association of perfluorinated chemical exposure in utero with maternal and infant thyroid hormone levels in the Sapporo cohort of Hokkaido Study on the Environment and Children's Health.

AB - OBJECTIVES: Perfluorooctane sulfonate (PFOS) and perfluorooctanoate (PFOA) have been widely used as industrial products, and are persistent organic pollutants due to their chemical stability. Previous studies suggested that PFOS and PFOA might disrupt thyroid hormone (TH) status. Although TH plays an important role in fetal growth during pregnancy, little attention has been paid to the relationships between maternal exposure to perfluorocarbons and TH statuses of mothers and fetuses. We investigated the effects of low levels of environmental PFOS and PFOA on thyroid function of mothers and infants. METHODS: Of the eligible subjects in a prospective cohort, 392 mother-infant pairs were selected. Concentration of maternal serum PFOS and PFOA was measured in samples taken during the second and third trimesters or within 1 week of delivery. Blood samples for measuring thyroid stimulating hormone (TSH) and free thyroxine (FT4) levels were obtained from mothers at early gestational stage (median 11.1 weeks), and from infants between 4 and 7 days of age, respectively. RESULTS: Median concentrations of PFOS and PFOA were 5.2 [95 % confidence interval (CI) 1.6-12.3] and 1.2 (95 % CI limitation of detection-3.4) ng/mL, respectively. Maternal PFOS levels were inversely correlated with maternal serum TSH and positively associated with infant serum TSH, whereas maternal PFOA showed no significant relationship with TSH or FT4 among mothers and infants. CONCLUSIONS: These findings suggest that PFOS may independently affect the secretion and balances of maternal and infant TSH even at low levels of environmental exposure.

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 LA - ENG
 PT - JOURNAL ARTICLE
 DEP - 20160430
 TA - Environ Health Prev Med
 JT - Environmental health and preventive medicine
 JID - 9609642
 OTO - NOTNLM
 OT - Mother-infant pairs

OT - Perfluorooctane sulfonate
 OT - Perfluorooctanoate
 OT - Prenatal exposure
 OT - Thyroid hormones
 EDAT- 2016/05/04 06:00
 MHDA- 2016/05/04 06:00
 CRDT- 2016/05/04 06:00
 PHST- 2015/11/19 [received]
 PHST- 2016/04/13 [accepted]
 PHST- 2016/04/30 [aheadofprint]
 AID - 10.1007/s12199-016-0534-2 [doi]
 AID - 10.1007/s12199-016-0534-2 [pii]
 PST - aheadofprint
 SO - Environ Health Prev Med. 2016 Apr 30.

PMID- 26922149

OWN - NLM

STAT- In-Data-Review

DA - 20160402

IS - 1873-6750 (Electronic)

IS - 0160-4120 (Linking)

VI - 89-90

DP - 2016 Apr-May

TI - Comparative assessment of the environmental hazards of and exposure to perfluoroalkyl phosphonic and phosphinic acids (PFPAs and PFPIAs): Current knowledge, gaps, challenges and research needs.

PG - 235-47

LID - 10.1016/j.envint.2016.01.023 [doi]

LID - S0160-4120(16)30024-1 [pii]

AB - Perfluoroalkyl phosphonic and phosphinic acids (PFPAs and PFPIAs) are sub-groups of per- and polyfluoroalkyl substances (PFASs) that have been commercialized since the 1970s, particularly as defoamers in pesticide formulations and wetting agents in consumer products. Recently, C4/C4 PFPIA and its derivatives have been presented as alternatives to long-chain PFASs in certain applications. In this study, we systematically assess the publicly available information on the hazardous properties, occurrence, and exposure routes of PFPAs and PFPIAs, and make comparisons to the corresponding properties of their better-known carboxylic and sulfonic acid analogs (i.e. PFCAs and PFSAs). This comparative assessment indicates that [i] PFPAs likely have high persistence and long-range transport potential; [ii] PFPIAs may transform to PFPAs (and possibly PFCAs) in the environment and biota; [iii] certain PFPAs and PFPIAs can only be slowly eliminated from rainbow trout and rats, similarly to long-chain PFCAs and PFSAs; [iv] PFPAs and PFPIAs have modes-of-action that are both similar to, and different from, those of PFCAs and PFSAs; and [v] the measured levels of PFPAs/PFPIAs in the global environment and biota appear to be low in comparison to PFCAs and PFSAs, suggesting, for the time being, low risks from PFPAs and PFPIAs alone. Although risks from individual PFPAs/PFPIAs are currently low, their ongoing production and use and high persistence will lead to increasing exposure and risks over time. Furthermore, simultaneous exposure to PFPAs, PFPIAs and other PFASs may result in additive effects necessitating cumulative risk assessments. To facilitate effective future research, we highlight possible strategies to overcome sampling and analytical challenges.

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LA - eng
 PT - Journal Article
 PT - Review
 DEP - 20160226
 PL - Netherlands
 TA - Environ Int
 JT - Environment international
 JID - 7807270
 SB - IM
 OTO - NOTNLM
 OT - Environmental fate and transport
 OT - Environmental occurrence
 OT - Exposure routes
 OT - Life-cycle
 OT - PBT assessment
 OT - PFPAs and PFPIAs
 OT - Sampling and analytical challenges
 EDAT- 2016/02/29 06:00
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 AID - S0160-4120(16)30024-1 [pii]
 AID - 10.1016/j.envint.2016.01.023 [doi]
 PST - ppublish
 SO - Environ Int. 2016 Apr-May;89-90:235-47. doi: 10.1016/j.envint.2016.01.023. Epub 2016 Feb 26.

PMID- 26826363
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160402
 IS - 1873-6750 (Electronic)
 IS - 0160-4120 (Linking)
 VI - 89-90
 DP - 2016 Apr-May
 TI - Impacts of daily intakes on the isomeric profiles of perfluoroalkyl substances

(PFASs) in human serum.

PG - 62-70

LID - 10.1016/j.envint.2016.01.002 [doi]

LID - S0160-4120(16)30002-2 [pii]

AB - Perfluoroalkyl substances (PFASs) have been well studied in human daily intake for assessment of potential health risks. However, little is known about the isomeric compositions of PFASs in daily intake and their impacts on isomeric profiles in humans. In this study, we investigated the occurrence of PFASs with isomeric analysis in various human exposure matrices including foodstuffs, tap water and indoor dust. Perfluorooctanesulfonate (PFOS) and/or perfluorooctanoate (PFOA) were predominant in these exposure matrices collected in Tianjin, China. In fish and meat, linear (n-) PFOA was enriched with a percentage of 92.2% and 99.6%, respectively. Although n-PFOS was higher in fish (84.8%) than in technical PFOS (ca. 70%), it was much lower in meat (63.1%) and vegetables (58.5%). Dietary intake contributed >99% of the estimated daily intake (EDI) for the general population. The isomeric profiles of PFOA and PFOS in human serum were predicted based on the EDI and a one-compartment, first-order pharmacokinetic model. The isomeric percentage of n-PFOA in the EDI (98.6%) was similar to that in human serum (predicted: 98.2%, previously measured: 99.7%) of Tianjin residents. The results suggest direct PFOA intake plays an important role in its isomeric compositions in humans. For PFOS, the predicted n-PFOS (69.3%) was much higher than the previously measured values (59.2%) in human serum. This implies that other factors, such as indirect exposure to PFOS precursors and multiple excretion pathways, may contribute to the lower percentage of n-PFOS in humans than of technical PFOS.

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LA - eng

PT - Journal Article

DEP - 20160128

PL - Netherlands

TA - Environ Int

JT - Environment international

JID - 7807270

SB - IM

OTO - NOTNLM

OT - Foodstuffs

OT - Human exposure

OT - Isomers

OT - PFOA

OT - PFOS

EDAT- 2016/01/31 06:00

MHDA- 2016/01/31 06:00

CRDT- 2016/01/31 06:00

PHST- 2015/08/06 [received]

PHST- 2016/01/05 [revised]

PHST- 2016/01/08 [accepted]

PHST- 2016/01/28 [aheadofprint]

AID - S0160-4120(16)30002-2 [pii]

AID - 10.1016/j.envint.2016.01.002 [doi]

PST - ppublish

SO - Environ Int. 2016 Apr-May;89-90:62-70. doi: 10.1016/j.envint.2016.01.002. Epub 2016 Jan 28.

PMID- 27132161

OWN - NLM

STAT- Publisher

DA - 20160519

LR - 20160519

IS - 1873-6750 (Electronic)

IS - 0160-4120 (Linking)

VI - 92-93

DP - 2016 Apr 29

TI - Variability of perfluoroalkyl substance concentrations in pregnant women by socio-demographic and dietary factors in a Spanish birth cohort.

PG - 357-365

LID - S0160-4120(16)30134-9 [pii]

LID - 10.1016/j.envint.2016.04.004 [doi]

AB - BACKGROUND: Prenatal exposure to perfluoroalkyl substances (PFAS) might affect child health; but maternal determinants of PFAS exposure are unclear. We evaluated the socio-demographic and dietary factors of prenatal PFAS

concentrations in a Spanish birth cohort. **METHODS:** We analyzed perfluorohexanesulfonic acid (PFHxS), perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and perfluorononanoic acid (PFNA) in 1216 plasma samples collected during the 1ST trimester of pregnancy (2003-2008). We used multivariable linear regressions to assess the geometric mean (GM) ratios of PFAS concentrations by socio-demographic and dietary factors. We used analysis of variance (ANOVA) to assess the variability of PFAS concentrations by maternal factors. **RESULTS:** GM PFAS concentrations ranged from 0.55ng/mL for PFHxS to 5.77ng/mL for PFOS. Women born outside of Spain had lower PFAS concentrations (e.g. GM ratio for PFHxS 0.53[95%CI: 0.46, 0.60] than Spanish women. PFHxS and PFOA concentrations were higher in mothers from the regions of Sabadell (2.13[1.93, 2.35] and 1.73[1.60, 1.88], respectively) and Valencia (1.40[1.28, 1.54] and 1.42[1.31, 1.53], respectively) than Gipuzkoa. PFOA and PFNA concentrations decreased with parity (≥ 2 children: 0.79[0.67, 0.94] and 0.82[0.68, 0.99], respectively). Younger women (i.e. < 25 years) had lower PFHxS (0.73[0.62, 0.86]) and PFOS (0.85[0.75, 0.96]) concentrations than older women. PFHxS and PFOA concentrations were lower in women who previously breastfed for > 6 months compared to those who never breastfed (0.79[0.67, 0.94] and 0.82[0.71, 0.95], respectively). High intake of fish and shellfish during pregnancy (i.e. ≥ 5.6 servings/week) was associated with 11% (1.11[1.04, 1.18]) higher PFOS concentrations than the lowest intake group. Our ANOVA models explained 26% to 40% of PFAS concentrations variability. **CONCLUSIONS:** Prenatal PFAS concentrations were mainly determined by maternal country of birth, region of residence, previous breastfeeding and age. Fish and shellfish intake also contributed to PFOS and PFOA concentrations.

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LA - ENG

PT - JOURNAL ARTICLE

DEP - 20160429

TA - Environ Int

JT - Environment international

JID - 7807270

OTO - NOTNLM

OT - Birth cohort

OT - Maternal-fetal exposure

OT - Perfluoroalkyl substances (PFAS)

OT - Perfluorohexanesulfonic acid (PFHxS)

OT - Perfluorononanoic acid (PFNA)

OT - Perfluorooctanesulfonic acid (PFOS)

OT - Perfluorooctanoic acid (PFOA)

OT - Spain

EDAT- 2016/05/02 06:00

MHDA- 2016/05/02 06:00

CRDT- 2016/05/02 06:00

PHST- 2016/02/08 [received]

PHST- 2016/03/24 [revised]

PHST- 2016/04/04 [accepted]

AID - S0160-4120(16)30134-9 [pii]

AID - 10.1016/j.envint.2016.04.004 [doi]

PST - aheadofprint

SO - Environ Int. 2016 Apr 29;92-93:357-365. doi: 10.1016/j.envint.2016.04.004.

PMID- 27089420

OWN - NLM

STAT- In-Data-Review

DA - 20160605

IS - 1873-6424 (Electronic)

IS - 0269-7491 (Linking)

VI - 214

DP - 2016 Jul

TI - Spatial and temporal trends in perfluoroalkyl substances (PFASs) in ringed seals (*Pusa hispida*) from Svalbard.

PG - 230-8

LID - 10.1016/j.envpol.2016.04.016 [doi]

LID - S0269-7491(16)30282-2 [pii]

AB - This study investigates concentrations of perfluoroalkyl carboxylates (PFCAs), perfluoroalkyl sulfonates (PFSA) and perfluoroalkane sulfonamides (FASA) in plasma from ringed seals sampled in the period 1990-2010 (n = 71) in Svalbard, Norway. Perfluorooctane sulfonate was dominant among the perfluoroalkyl substances. PFCAs were dominated by perfluoroundecanoate followed by perfluorononanoate. C4C8 PFCAs and perfluorooctane sulfonamide (FOSA) were detected in $\leq 42\%$ of the samples. PFSA and PFCA concentrations were higher in seals sampled from Kongsfjorden, a fjord influenced by strong inflows of Atlantic Water compared to seals from fjords dominated by Arctic Water (e.g. Billefjorden). Sex, age and body condition of the seals did not influence PFAS concentrations. Due to the confounding effect of year and sampling area, temporal trends were assessed only in seals sampled from Kongsfjorden (5 years, n = 51). PFHxS and PFOS concentrations did not show significant linear trends during the whole study period, but a decrease was observed since 2004. Concentrations of all of the detected PFCAs (C9C13 PFCAs) increased until 2004 after which they have declined or stabilized.

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LA - eng

PT - Journal Article

DEP - 20160417

PL - England

TA - Environ Pollut

JT - Environmental pollution (Barking, Essex : 1987)

JID - 8804476

SB - IM

OTO - NOTNLM

OT - Arctic

OT - Arctic vs Atlantic water masses

OT - Contaminant

OT - Kongsfjorden

OT - Oceanic transport

EDAT- 2016/04/19 06:00

MHDA- 2016/04/19 06:00

CRDT- 2016/04/19 06:00

PHST- 2016/03/04 [received]

PHST- 2016/04/04 [revised]

PHST- 2016/04/05 [accepted]

PHST- 2016/04/17 [aheadofprint]

AID - S0269-7491(16)30282-2 [pii]

AID - 10.1016/j.envpol.2016.04.016 [doi]

PST - ppublish

SO - Environ Pollut. 2016 Jul;214:230-8. doi: 10.1016/j.envpol.2016.04.016. Epub 2016 Apr 17.

PMID- 26745397

OWN - NLM

STAT- In-Data-Review

DA - 20160313

IS - 1873-6424 (Electronic)

IS - 0269-7491 (Linking)

VI - 211

DP - 2016 Apr

TI - Perfluorinated compounds in soil, surface water, and groundwater from rural areas in eastern China.

PG - 124-31

LID - 10.1016/j.envpol.2015.12.024 [doi]

LID - S0269-7491(15)30238-4 [pii]

AB - Little research on perfluorinated compounds (PFCs) has been conducted in rural areas, although rural PFC sources are less complicated than in urban and industrial areas. To determine the levels and geographical distribution of 17 PFC compounds, samples of soil, surface water, and groundwater were collected from eight rural areas in eastern China. The total PFC concentrations (summation operatorPFCs) in soils ranged from 0.34 to 65.8 ng/g summation operatorPFCs in surface waters ranged from 7.0 to 489 ng/L and summation operatorPFCs in groundwater ranged from 5.3 to 615 ng/L. Ratios of perfluorononanoic acid/perfluorooctanoic acid (PFNA/PFOA), perfluoro-n-butyric acid/perfluorooctanoic acid (PFBA/PFOA), and perfluoroheptanoic acid/perfluorooctanoic acid (PFHpA/PFOA) in rainwater increased due to the fluorine chemical plants in the surrounding rural and urban areas, suggesting that atmospheric precipitation may carry PFCs and their precursors from the fluorochemical industrial area to the adjacent rural areas.

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 LA - eng
 PT - Journal Article
 DEP - 20151230
 PL - England
 TA - Environ Pollut
 JT - Environmental pollution (Barking, Essex : 1987)
 JID - 8804476
 SB - IM
 OTO - NOTNLM
 OT - Eastern China
 OT - Groundwater
 OT - PFCs
 OT - Rural areas
 OT - Soil
 OT - Surface water
 EDAT- 2016/01/09 06:00
 MHDA- 2016/01/09 06:00
 CRDT- 2016/01/09 06:00
 PHST- 2015/06/16 [received]
 PHST- 2015/12/13 [revised]
 PHST- 2015/12/14 [accepted]
 PHST- 2015/12/30 [aheadofprint]
 AID - S0269-7491(15)30238-4 [pii]
 AID - 10.1016/j.envpol.2015.12.024 [doi]
 PST - ppublish
 SO - Environ Pollut. 2016 Apr;211:124-31. doi: 10.1016/j.envpol.2015.12.024. Epub 2015
 Dec 30.

 PMID- 27111244
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160520
 IS - 1096-0953 (Electronic)
 IS - 0013-9351 (Linking)
 VI - 148
 DP - 2016 Jul
 TI - Elevated levels of short carbon-chain PFCAs in breast milk among Korean women:
 Current status and potential challenges.
 PG - 351-9
 LID - 10.1016/j.envres.2016.04.017 [doi]

LID - S0013-9351(16)30141-4 [pii]

AB - Breast milks can be contaminated with perfluoroalkyl substances (PFASs). Exposure to PFASs during early stages of life may lead to adverse health effects among breastfed infants. To date, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) have been most frequently measured PFASs in breast milks worldwide. Information on shorter carbon-chain PFASs in breast milk is scarce. In this study, breast milks were sampled from 264 Korean lactating women, and measured for seventeen PFASs, including ten perfluoroalkyl carboxylates (PFCAs), four perfluoroalkyl sulfonates, and three perfluoroalkyl sulfonamides. PFOA and PFOS were detected in 98.5% of the breast milk samples, with median concentrations of 0.072 and 0.050 ng/mL, respectively. Perfluoropentanoic acid (PFPeA), perfluorohexanoic acid (PFHxA), and perfluoroheptanoic acid (PFHpA) were detected in higher frequencies, ranging between 67.4% and 81.8%. The concentrations of short carbon-chain PFCAs in breast milk such as PFPeA and PFHxA were the highest ever reported to date, and were comparable to that of PFOS. Concentrations of shorter chain PFCA in breast milk tended to be higher among the women with longer lactation period, while those of PFOA showed the opposite trend, suggesting a possibility that breastfeeding might be an important route of excretion for PFOA among lactating women. Fish consumption and the use of consumer products, e.g., skin care products, cosmetics and non-stick coated cooking utensils, were identified as significant predictors of PFAS concentrations in breast milk. Health risks associated with PFOA and PFOS exposure through breastfeeding were estimated negligible, however, risks of the short carbon-chain PFCAs could not be assessed because of lack of relevant toxicological information. Further efforts for source identification and exposure management measures for shorter chain PFCAs are necessary.

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LA - eng
 PT - Journal Article
 DEP - 20160423
 PL - Netherlands
 TA - Environ Res
 JT - Environmental research
 JID - 0147621
 SB - IM
 OTO - NOTNLM
 OT - Breastfeeding
 OT - Fluorinated
 OT - Lactating
 OT - Personal care products
 OT - Teflon-coated cookware
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 PHST- 2016/04/07 [revised]
 PHST- 2016/04/14 [accepted]
 PHST- 2016/04/23 [aheadofprint]
 AID - S0013-9351(16)30141-4 [pii]
 AID - 10.1016/j.envres.2016.04.017 [doi]
 PST - ppublish
 SO - Environ Res. 2016 Jul;148:351-9. doi: 10.1016/j.envres.2016.04.017. Epub 2016 Apr 23.

PMID- 26802619
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160220
 IS - 1096-0953 (Electronic)
 IS - 0013-9351 (Linking)
 VI - 146
 DP - 2016 Apr
 TI - Perfluorooctanoic acid exposure and natural menopause: A longitudinal study in a community cohort.
 PG - 323-30
 LID - 10.1016/j.envres.2015.12.037 [doi]
 LID - S0013-9351(15)30199-7 [pii]
 AB - INTRODUCTION: Perfluorooctanoic acid (PFOA), a suspected endocrine disruptor, is a bio-persistent chemical found at low levels in the serum of nearly all U.S. residents. Early menopause has been positively associated with serum PFOA in prior cross-sectional studies. METHODS: We conducted a longitudinal analysis of age at menopause among women, aged ≥ 40 years, (N=8759) in a Mid-Ohio Valley community cohort, exposed to high PFOA levels via contaminated drinking water. Using estimated retrospective year-specific serum PFOA concentrations (1951-2011), we examined the associations between PFOA, as cumulative exposure or year-specific serum estimates, and natural menopause using a Cox proportional hazards models. As participants were initially recruited in 2005-2006, we also analyzed the cohort prospectively (i.e., from the time of enrollment), using both modeled cumulative PFOA, and PFOA serum levels measured in 2005-2006. Women with hysterectomy (a competing risk) were either censored or excluded from the analysis. RESULTS: Neither in the retrospective nor the prospective cohort did we find a significant (at $\alpha=0.05$) trend between PFOA exposure and natural menopause. The non-significant, hazard ratios by quintile of increasing

cumulative serum PFOA were 1.00 (referent), 1.00, 1.09, 1.05 and 1.06 (trend test for log cumulative exposure: $p=0.37$) with hysterectomies censored, and 1.00 (referent), 1.06, 1.13, 1.09 and 1.11 (trend test for log cumulative exposure: $p=0.85$) with hysterectomies excluded. Year-specific serum estimates were also not associated with early menopause. CONCLUSION: Our data suggest that earlier age at menopause is not associated with PFOA exposure.

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LA - eng

PT - Journal Article

DEP - 20160121

PL - United States

TA - Environ Res

JT - Environmental research

JID - 0147621

SB - IM

EDAT- 2016/01/24 06:00

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PHST- 2015/12/27 [revised]

PHST- 2015/12/31 [accepted]

PHST- 2016/01/21 [aheadofprint]

AID - S0013-9351(15)30199-7 [pii]

AID - 10.1016/j.envres.2015.12.037 [doi]

PST - ppublish

SO - Environ Res. 2016 Apr;146:323-30. doi: 10.1016/j.envres.2015.12.037. Epub 2016 Jan 21.

PMID- 26796985

OWN - NLM

STAT- In-Data-Review

DA - 20160220

LR - 20160222

IS - 1096-0953 (Electronic)

IS - 0013-9351 (Linking)

VI - 146

DP - 2016 Apr

TI - Variability and epistemic uncertainty in water ingestion rates and pharmacokinetic parameters, and impact on the association between perfluorooctanoate and preeclampsia in the C8 Health Project population.

PG - 299-307

LID - 10.1016/j.envres.2016.01.011 [doi]

LID - S0013-9351(16)30011-1 [pii]

AB - We recently utilized a suite of environmental fate and transport models and an integrated exposure and pharmacokinetic model to estimate individual perfluorooctanoate (PFOA) serum concentrations, and also assessed the association of those concentrations with preeclampsia for participants in the C8 Health Project (a cross-sectional study of over 69,000 people who were environmentally exposed to PFOA near a major U.S. fluoropolymer production facility located in West Virginia). However, the exposure estimates from this integrated model relied on default values for key independent exposure parameters including water ingestion rates, the serum PFOA half-life, and the volume of distribution for PFOA. The aim of the present study is to assess the impact of inter-individual variability and epistemic uncertainty in these parameters on the exposure estimates and subsequently, the epidemiological association between PFOA exposure and preeclampsia. We used Monte Carlo simulation to propagate inter-individual variability/epistemic uncertainty in the exposure assessment and reanalyzed the epidemiological association. Inter-individual variability in these parameters mildly impacted the serum PFOA concentration predictions (the lowest mean rank correlation between the estimated serum concentrations in our study and the original predicted serum concentrations was 0.95) and there was a negligible impact on the epidemiological association with preeclampsia (no change in the mean adjusted odds ratio (AOR) and the contribution of exposure uncertainty to the total uncertainty including sampling variability was 7%). However, when epistemic uncertainty was added along with the inter-individual variability, serum PFOA concentration predictions and their association with preeclampsia were moderately impacted (the mean AOR of preeclampsia occurrence was reduced from 1.12 to 1.09, and the contribution of exposure uncertainty to the total uncertainty was increased up to 33%). In conclusion, our study shows that the change of the rank exposure among the study participants due to variability and epistemic uncertainty in the independent exposure parameters was large enough to cause a 25% bias towards the null. This suggests that the true AOR of the association between PFOA and preeclampsia in this population might be higher than the originally reported AOR and has more uncertainty than indicated by the originally reported confidence interval.

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 GR - R21 ES023120/ES/NIEHS NIH HHS/United States
 PT - Journal Article
 DEP - 20160119
 PL - United States
 TA - Environ Res
 JT - Environmental research
 JID - 0147621
 SB - IM
 PMC - PMC4761513
 MID - NIHMS752886
 OID - NLM: NIHMS752886 [Available on 04/01/17]
 OID - NLM: PMC4761513 [Available on 04/01/17]
 OTO - NOTNLM
 OT - C8 Science Panel
 OT - Individual-level exposure uncertainty
 OT - Measurement error
 OT - Perfluorooctanoate
 OT - Preeclampsia
 EDAT- 2016/01/23 06:00
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 PMCR- 2017/04/01 00:00
 PHST- 2015/10/01 [received]
 PHST- 2015/12/08 [revised]
 PHST- 2016/01/08 [accepted]
 PHST- 2016/01/19 [aheadofprint]
 AID - S0013-9351(16)30011-1 [pii]
 AID - 10.1016/j.envres.2016.01.011 [doi]
 PST - ppublish
 SO - Environ Res. 2016 Apr;146:299-307. doi: 10.1016/j.envres.2016.01.011. Epub 2016 Jan 19.
 PMID- 27107988
 OWN - NLM
 STAT- Publisher
 DA - 20160424
 LR - 20160425
 IS - 1614-7499 (Electronic)
 IS - 0944-1344 (Linking)
 DP - 2016 Apr 23
 TI - Common carp *Cyprinus carpio* responses to sub-chronic exposure to perfluorooctanoic acid.
 AB - Perfluorooctanoic acid (PFOA) is an important and diffuse perfluorinated alkylated substance, but knowledge of the toxicological effects of this endocrine disrupter in fish is limited. Adult common carp *Cyprinus carpio*, L. were exposed to 200 ng/l (a concentration reported in impacted aquatic ecosystems) and 2 mg/l PFOA solutions in a flow-through system for 56 days to determine tissue

accumulation and histological alterations of the primary target organs. PFOA was extracted from blood, gill, liver, muscle, kidney, gonad, and brain by an ion-pairing liquid extraction procedure and quantified using high performance liquid chromatography with electrospray ionization tandem mass spectrometry. The limit of detection (LOD) was 0.4 ng/g wet weight (ww). PFOA was not detectable in unexposed fish or in fish exposed to 200 ng/l, but was >LOD in most samples of carp exposed to 2 mg/l. Mean PFOA concentration ranged from 0.5 to 65 ng/g ww, depending on the tissue, with highest levels in the blood and liver. There were no significant differences in condition factor, hepato-somatic index, or gonado-somatic index among the fish of the three groups. Histological, histochemical, and immunohistochemical staining was performed on sections of liver and gonad. Occurrence of atretic oocytes and a paucity of spermatozoa were documented in carp treated with 2 mg/l PFOA. Exposed fish did not show gross hepatic anomalies, but there was enhancement of hepatocytes in proliferation (positive to anti-PCNA antibody) compared to controls.

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LA - ENG

PT - JOURNAL ARTICLE

DEP - 20160423

TA - Environ Sci Pollut Res Int

JT - Environmental science and pollution research international

JID - 9441769

OTO - NOTNLM

OT - Bioaccumulation

OT - Endocrine disruptors

OT - Hepatocyte proliferation

OT - Oocyte atresia

OT - Perfluorinated alkylated substances
 OT - Spermatozoa suppression
 EDAT- 2016/04/25 06:00
 MHDA- 2016/04/25 06:00
 CRDT- 2016/04/25 06:00
 PHST- 2015/12/04 [received]
 PHST- 2016/04/17 [accepted]
 PHST- 2016/04/23 [aheadofprint]
 AID - 10.1007/s11356-016-6706-1 [doi]
 AID - 10.1007/s11356-016-6706-1 [pii]
 PST - aheadofprint
 SO - Environ Sci Pollut Res Int. 2016 Apr 23.

PMID- 26966787

OWN - NLM

STAT- In-Data-Review

DA - 20160406

IS - 1520-5851 (Electronic)

IS - 0013-936X (Linking)

VI - 50

IP - 7

DP - 2016 Apr 5

TI - Nationwide Distribution of Per- and Polyfluoroalkyl Substances in Outdoor Dust in Mainland China From Eastern to Western Areas.

PG - 3676-85

LID - 10.1021/acs.est.6b00649 [doi]

AB - From eastern to western areas, per- and polyfluoroalkyl substances (PFASs) were detected at substantial levels in the outdoor dust across mainland China. Urban samples generally showed higher levels compared with those of rural samples. Compared with neutral PFASs, ionizable PFASs (C4-C12 perfluoroalkyl carboxylic acids and C4/C8 perfluoroalkyl sulfonic acids) were more abundant, with the highest total concentration up to 1.6×10^2 ng/g and perfluorooctanoic acid (PFOA) being a predominant analogue. Fluorotelomer alcohols (FTOHs) and polyfluoroalkyl phosphoric acid diesters (DiPAPs) were both detected in most samples with total concentrations of 0.12-32 and 0.030-20 ng/g, respectively. Perfluorooctane sulfonamidoethanols/sulfonamides (FOSE/As) were detected at low frequencies (<30%). In addition to partitioning to organic moiety, specific adsorption onto mineral particles can be important for PFASs to bind onto outdoor dust, especially for short-chain ionizable PFASs. The eastern plain areas were characterized by a higher contribution of long-chain ionizable PFASs; whereas the western high plateau areas were characterized by the dominating contribution of short-chain analogues. The difference suggests that the long-range atmospheric transport potential of PFASs from source regions to the inland is probably limited by the increase in altitude, and different sources from adjacent regions may influence the western border area of China.

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 LA - eng
 PT - Journal Article
 DEP - 20160323
 PL - United States
 TA - Environ Sci Technol
 JT - Environmental science & technology
 JID - 0213155
 SB - IM
 EDAT- 2016/03/12 06:00
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 PHST- 2016/03/23 [aheadofprint]
 AID - 10.1021/acs.est.6b00649 [doi]
 PST - ppublish
 SO - Environ Sci Technol. 2016 Apr 5;50(7):3676-85. doi: 10.1021/acs.est.6b00649. Epub 2016 Mar 23.

 PMID- 26900769
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160406
 IS - 1520-5851 (Electronic)
 IS - 0013-936X (Linking)
 VI - 50
 IP - 7
 DP - 2016 Apr 5
 TI - Pesticide Mixture Toxicity in Surface Water Extracts in Snails (*Lymnaea stagnalis*) by an in Vitro Acetylcholinesterase Inhibition Assay and Metabolomics.
 PG - 3937-44
 LID - 10.1021/acs.est.5b04577 [doi]
 AB - Many chemicals in use end up in the aquatic environment. The toxicity of water samples can be tested with bioassays, but a metabolomic approach has the advantage that multiple end points can be measured simultaneously and the affected metabolic pathways can be revealed. A current challenge in metabolomics is the study of mixture effects. This study aims at investigating the toxicity of an environmental extract and its most abundant chemicals identified by target chemical analysis of >100 organic micropollutants and effect-directed analysis (EDA) using the acetylcholinesterase (AChE) bioassay and metabolomics. Surface water from an agricultural area was sampled with a large volume solid phase

extraction (LVSPE) device using three cartridges containing neutral, anionic, and cationic sorbents able to trap several pollutants classes like pharmaceuticals, pesticides, PAHs, PCBs, and perfluorinated surfactants. Targeted chemical analysis and AChE bioassay were performed on the cartridge extracts. The extract of the neutral sorbent cartridge contained most of the targeted chemicals, mainly imidacloprid, thiacloprid, and pirimicarb, and was the most potent AChE inhibitor. Using an EDA approach, other AChE inhibiting candidates were identified in the neutral extract, such as carbendazim and esprocarb. Additionally, a metabolomics experiment on the central nervous system (CNS) of the freshwater snail *Lymnaea stagnalis* was conducted. The snails were exposed to the extract, the three most abundant chemicals individually, and a mixture of these. The extract disturbed more metabolic pathways than the three most abundant chemicals individually, indicating the contribution of other chemicals. Most pathways perturbed by the extract exposure overlapped with those related to exposure to neonicotinoids, like the polyamine metabolism involved in CNS injuries. Metabolomics for the straightforward comparison between a complex mixture and single compound toxicity is still challenging but, compared to traditional biotesting, is a promising tool due to its increased sensitivity.

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LA - eng

PT - Journal Article

DEP - 20160309

PL - United States

TA - Environ Sci Technol

JT - Environmental science & technology

JID - 0213155

SB - IM

EDAT- 2016/02/24 06:00

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PHST- 2016/03/09 [aheadofprint]

AID - 10.1021/acs.est.5b04577 [doi]

PST - ppublish

SO - Environ Sci Technol. 2016 Apr 5;50(7):3937-44. doi: 10.1021/acs.est.5b04577. Epub

2016 Mar 9.

PMID- 26894610

OWN - NLM

STAT- In-Data-Review

DA - 20160406

IS - 1520-5851 (Electronic)

IS - 0013-936X (Linking)

VI - 50

IP - 7

DP - 2016 Apr 5

TI - Effects of Aqueous Film-Forming Foams (AFFFs) on Trichloroethene (TCE) Dechlorination by a *Dehalococcoides mccartyi*-Containing Microbial Community.

PG - 3352-61

LID - 10.1021/acs.est.5b04773 [doi]

AB - The application of aqueous film-forming foams (AFFFs) to extinguish chlorinated solvent-fueled fires has led to the co-contamination of poly- and perfluoroalkyl substances (PFASs) and trichloroethene (TCE) in groundwater and soil. Although reductive dechlorination of TCE by *Dehalococcoides mccartyi* is a frequently used remediation strategy, the effects of AFFF and PFASs on TCE dechlorination are not well-understood. Various AFFF formulations, PFASs, and ethylene glycols were amended to the growth medium of a *D. mccartyi*-containing enrichment culture to determine the impact on dechlorination, fermentation, and methanogenesis. The community was capable of fermenting organics (e.g., diethylene glycol butyl ether) in all AFFF formulations to hydrogen and acetate, but the product concentrations varied significantly according to formulation. TCE was dechlorinated in the presence of an AFFF formulation manufactured by 3M but was not dechlorinated in the presence of formulations from two other manufacturers. Experiments amended with AFFF-derived PFASs and perfluoroalkyl acids (PFAAs) indicated that dechlorination could be inhibited by PFASs but that the inhibition depends on surfactant concentration and structure. This study revealed that the fermentable components of AFFF can stimulate TCE dechlorination, while some of the fluorinated compounds in certain AFFF formulations can inhibit dechlorination.

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LA - eng
PT - Journal Article
DEP - 20160321
PL - United States
TA - Environ Sci Technol
JT - Environmental science & technology
JID - 0213155
SB - IM
EDAT- 2016/02/20 06:00
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CRDT- 2016/02/20 06:00
PHST- 2016/03/21 [aheadofprint]
AID - 10.1021/acs.est.5b04773 [doi]
PST - ppublish
SO - Environ Sci Technol. 2016 Apr 5;50(7):3352-61. doi: 10.1021/acs.est.5b04773. Epub
2016 Mar 21.

PMID- 27131065
OWN - NLM
STAT- In-Data-Review
DA - 20160604
IS - 1768-3254 (Electronic)
IS - 0223-5234 (Linking)
VI - 118
DP - 2016 Aug 8
TI - Design and synthesis of novel bicalutamide and enzalutamide derivatives as
antiproliferative agents for the treatment of prostate cancer.
PG - 230-43
LID - 10.1016/j.ejmech.2016.04.052 [doi]
LID - S0223-5234(16)30345-2 [pii]
AB - Prostate cancer (PC) is one of the major causes of male death worldwide and the
development of new and more potent anti-PC compounds is a constant requirement.
Among the current treatments, (R)-bicalutamide and enzalutamide are non-steroidal
androgen receptor antagonist drugs approved also in the case of
castration-resistant forms. Both these drugs present a moderate antiproliferative
activity and their use is limited due to the development of resistant mutants of
their biological target. Insertion of fluorinated and perfluorinated groups in
biologically active compounds is a current trend in medicinal chemistry, applied
to improve their efficacy and stability profiles. As a means to obtain such
effects, different modifications with perfluoro groups were rationally designed
on the bicalutamide and enzalutamide structures, leading to the synthesis of a
series of new antiproliferative compounds. Several new analogues displayed
improved in vitro activity towards four different prostate cancer cell lines,
while maintaining full AR antagonism and therefore representing promising leads
for further development. Furthermore, a series of molecular modelling studies
were performed on the AR antagonist conformation, providing useful insights on
potential protein-ligand interactions.
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 LA - eng
 PT - Journal Article
 DEP - 20160422
 PL - France
 TA - Eur J Med Chem
 JT - European journal of medicinal chemistry
 JID - 0420510
 SB - IM
 OTO - NOTNLM
 OT - Androgen receptor
 OT - Antiproliferative activity
 OT - Bicalutamide
 OT - Enzalutamide
 OT - Perfluoroalkyl
 OT - Prostate cancer
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 PHST- 2016/04/20 [revised]
 PHST- 2016/04/21 [accepted]
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 AID - S0223-5234(16)30345-2 [pii]
 AID - 10.1016/j.ejmech.2016.04.052 [doi]
 PST - ppublish
 SO - Eur J Med Chem. 2016 Aug 8;118:230-43. doi: 10.1016/j.ejmech.2016.04.052. Epub
 2016 Apr 22.

 PMID- 25939797
 OWN - NLM
 STAT- In-Data-Review

DA - 20160404

IS - 1436-6215 (Electronic)

IS - 1436-6207 (Linking)

VI - 55

IP - 3

DP - 2016 Apr

TI - The modifying effect of vitamin C on the association between perfluorinated compounds and insulin resistance in the Korean elderly: a double-blind, randomized, placebo-controlled crossover trial.

PG - 1011-20

LID - 10.1007/s00394-015-0915-0 [doi]

AB - **PURPOSE:** There is limited evidence whether environmental exposure to perfluorinated compounds (PFCs) affects insulin resistance (IR) and whether vitamin C intake protects against the adverse effect of PFCs. This study was carried out to investigate the effect of PFCs on IR through oxidative stress, and the effects of a 4-week consumption of vitamin C supplement compared placebo on development of IR by PFCs. **METHODS:** For a double-blind, community-based, randomized, placebo-controlled crossover intervention of vitamin C, we assigned 141 elderly subjects to both vitamin C and placebo treatments for 4 weeks. We measured serum levels of PFCs to estimate PFC exposures and urinary levels of malondialdehyde (MDA) and 8-hydroxy-2'-deoxyguanosine (8-OHdG) for oxidative stress. We also measured levels of fasting glucose and insulin and derived the homeostatic model assessment (HOMA) index to assess IR. **RESULTS:** Perfluorooctane sulfonate (PFOS) and perfluorododecanoic acid (PFDoDA) levels were found to be positively associated with HOMA index at the baseline and after placebo treatment. Risks of IR for the top decile of PFOS and PFDoDA exposures were significantly elevated compared with those with lower PFOS and PFDoDA exposures (both, $P < 0.0001$). However, the effects of PFOS and PFDoDA on HOMA disappeared after vitamin C supplementation (both, $P > 0.30$). Furthermore, PFOS and PFDoDA levels were also significantly associated with MDA and 8-OHdG levels, and MDA levels were positively associated with HOMA index. **CONCLUSION:** PFOS and PFDoDA exposures were positively associated with IR and oxidative stress, and vitamin C supplementation protected against the adverse effects of PFOS and PFDoDA on IR.

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 LA - eng
 PT - Journal Article
 DEP - 20150505
 PL - Germany
 TA - Eur J Nutr
 JT - European journal of nutrition
 JID - 100888704
 SB - IM
 OTO - NOTNLM
 OT - Insulin resistance
 OT - Oxidative stress
 OT - Perfluorinated compounds
 OT - Vitamin C supplementation
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 PHST- 2015/05/05 [aheadofprint]
 AID - 10.1007/s00394-015-0915-0 [doi]
 AID - 10.1007/s00394-015-0915-0 [pii]
 PST - ppublish
 SO - Eur J Nutr. 2016 Apr;55(3):1011-20. doi: 10.1007/s00394-015-0915-0. Epub 2015 May
 5.

PMID- 27048548
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160505
 IS - 1633-8065 (Print)
 IS - 1633-8065 (Linking)
 VI - 26
 IP - 4
 DP - 2016 May
 TI - Prevention of inaccurate targeting of proximal screws during reconstruction
 femoral nailing.
 PG - 391-6
 LID - 10.1007/s00590-016-1769-8 [doi]
 AB - PURPOSE: The purpose of this study was to identify the underlying cause by
 simulating the forces involved in a controlled laboratory setting, and then to
 illustrate some intraoperative tips on how to detect this malalignment and
 suggest solutions prevent this intraoperative complication. METHODS: The Expert
 Asian Femoral Nail (A2FN) and Proximal Femoral Nail Antirotation (PFNA)
 reconstruction nail systems were evaluated to compare the characteristics of each
 nailing system and their reactions to soft tissue tension at the time of proximal
 reconstruction screw placement. Soft tissue tension was simulated by placing a
 fulcrum under the distal drill sleeve and exerting a load on the targeting device
 via the addition of weights. The occurrence and degree of guide malalignment were
 determined while gradually increasing the weight. RESULTS: When soft tissue

tension was simulated on the drill/guide sleeve of the A2FN, the drill sleeve deviated from the proximal screw hole proportionally to the weight applied and the K-wire guide passed outside of the nail at a weight of 7 kg. However, the drill sleeve of the PFNA was aligned exactly to the center of nail axis and the K-wire passed cleanly through the proximal locking hole regardless of weight applied. **CONCLUSIONS:** Inaccurate guidance of the screw-targeting device can be caused by soft tissue tension. Thus, the authors recommend that careful attention be placed on minimizing soft tissue tension during proximal screw placement while using the targeting device of the A2FN system.

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LA - eng

PT - Journal Article

DEP - 20160405

PL - France

TA - Eur J Orthop Surg Traumatol

JT - European journal of orthopaedic surgery & traumatology : orthopedie traumatologie

JID - 9518037

SB - IM

OTO - NOTNLM

OT - Complication

OT - Femur

OT - Reconstruction nail

OT - Subtrochanteric fracture

OT - Targeting device

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AID - 10.1007/s00590-016-1769-8 [pii]

PST - ppublish

SO - Eur J Orthop Surg Traumatol. 2016 May;26(4):391-6. doi:

10.1007/s00590-016-1769-8. Epub 2016 Apr 5.

PMID- 27125188

OWN - NLM

STAT- In-Data-Review

DA - 20160507

IS - 1873-3778 (Electronic)

IS - 0021-9673 (Linking)

VI - 1448

DP - 2016 May 27

TI - Simultaneous determination of perfluoroalkyl iodides, perfluoroalkane sulfonamides, fluorotelomer alcohols, fluorotelomer iodides and fluorotelomer acrylates and methacrylates in water and sediments using solid-phase microextraction-gas chromatography/mass spectrometry.

PG - 98-106

LID - 10.1016/j.chroma.2016.04.025 [doi]

LID - S0021-9673(16)30431-9 [pii]

AB - Here, we developed and validated a headspace-solid-phase microextraction-gas chromatography/mass spectrometry (HS-SPME-GC/MS) method for the determination of 14 volatile perfluorinated alkylated substances (PFASs) in water and sediment samples according to SANTE 11945/2015 guidelines. Three fluorotelomer alcohols (FTOHs), two perfluoroalkyl iodides (PFIs), three fluorotelomer iodides (FTIs), four fluorotelomer acrylates and methacrylates (FTACs and FTMACs) and two perfluoroalkyl sulfonamides (FASAs) were analysed simultaneously to assess the occurrence of these compounds from their emission sources to the outlets in water treatment plants. Several SPME parameters were optimised for both water and sediment to maximise responses and keep analysis time to a minimum. In tap water, the limits of quantification (LOQs) were found to be between 20ng/L and 100ng/L depending on the analyte, with mean recoveries ranging from 76 to 126%. For sediments, LOQs ranged from 1 to 3ng/g dry weight depending on the target compound, with mean recoveries ranging from 74 to 125%. SPME considerably reduced sample preparation time and its use provided a sensitive, fast and simple technique. We then used this HS-SPME-GC/MS method to investigate the presence of volatile PFASs in the vicinity of an industrial facility. Only 8:2 FTOH and 10:2 FTOH were detected in a few water and sediment samples at sub-ppb concentration levels. Moreover, several non-target fluorotelomers (12:2 FTOH, 14:2 FTOH and 10:2 FTI) were identified in raw effluent samples. These long-chain fluorotelomers have high bioaccumulative potential in the aquatic environment compared with short-chain fluorotelomers such as 6:2 FTOH and 6:2 FTI.

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 LA - eng
 PT - Journal Article
 DEP - 20160412
 PL - Netherlands
 TA - J Chromatogr A
 JT - Journal of chromatography. A
 JID - 9318488
 SB - IM
 OTO - NOTNLM
 OT - Fluorotelomers
 OT - Gas chromatography-mass spectrometry
 OT - Perfluoroalkyl and polyfluoroalkyl substances
 OT - Sediments
 OT - Solid-phase microextraction
 OT - Water
 EDAT- 2016/04/30 06:00
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 PHST- 2016/01/19 [received]
 PHST- 2016/03/30 [revised]
 PHST- 2016/04/10 [accepted]
 PHST- 2016/04/12 [aheadofprint]
 AID - S0021-9673(16)30431-9 [pii]
 AID - 10.1016/j.chroma.2016.04.025 [doi]
 PST - ppublish
 SO - J Chromatogr A. 2016 May 27;1448:98-106. doi: 10.1016/j.chroma.2016.04.025. Epub
 2016 Apr 12.

 PMID- 26949215
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160322
 IS - 1873-3778 (Electronic)
 IS - 0021-9673 (Linking)
 VI - 1441
 DP - 2016 Apr 8
 TI - A water resistant solid-phase microextraction fiber with high selectivity
 prepared by a metal organic framework with perfluorinated pores.
 PG - 16-23
 LID - 10.1016/j.chroma.2016.02.076 [doi]
 LID - S0021-9673(16)30221-7 [pii]
 AB - A novel solid-phase microextraction (SPME) fiber was fabricated by the
 construction of fluorous metal organic frameworks (FMOF) and a polyimide (PI)
 composite strategy. As an auxiliary material, PI was expected to help FMOF
 particles form well-knit film on the surface of stainless steel wire and

reinforce the coating, and FMOF was expected to afford a special structure to absorb, extract and enrich. Furthermore, it was explored for the headspace SPME (HS-SPME) of six volatile aromatic compounds (VACs) from water samples followed by gas chromatographic (GC) separation with flame ionization detection. Under the optimized conditions, the fiber afforded wide linear ranges (1-1000µg/L(-1)), low detection limits (0.15-0.9µg/L(-1)) and acceptable repeatability (<4.6%) and reproducibility (<7.3%). The FMOF@PI coated fiber not only offered large enhancement factors for benzene (1227) but also exhibited high extraction selectivity for benzene to other benzene homologues, hydrocarbons and phenols; for example, the extraction ratio of benzene to toluene, n-hexane and phenol could be as high as 10.2, 64.1 and 32.3, respectively. Moreover, the FMOF@PI-coated fiber afforded good thermal, water and organic solvent stabilities, and a long lifetime (over 200 times). The developed method was successfully applied to the determination of VACs in wastewater samples.

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LA - eng

PT - Journal Article

DEP - 20160303

PL - Netherlands

TA - J Chromatogr A

JT - Journal of chromatography. A

JID - 9318488

SB - IM

OTO - NOTNLM

OT - Fluorine-lined
 OT - Hydrophobic
 OT - Metal organic framework
 OT - Selective extraction
 OT - Solid-phase microextraction
 EDAT- 2016/03/08 06:00
 MHDA- 2016/03/08 06:00
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 PHST- 2015/12/14 [received]
 PHST- 2016/02/23 [revised]
 PHST- 2016/02/24 [accepted]
 PHST- 2016/03/03 [aheadofprint]
 AID - S0021-9673(16)30221-7 [pii]
 AID - 10.1016/j.chroma.2016.02.076 [doi]
 PST - ppublish
 SO - J Chromatogr A. 2016 Apr 8;1441:16-23. doi: 10.1016/j.chroma.2016.02.076. Epub 2016 Mar 3.

PMID- 27016113

OWN - NLM

STAT- In-Data-Review

DA - 20160406

IS - 1873-3778 (Electronic)

IS - 0021-9673 (Linking)

VI - 1443

DP - 2016 Apr 22

TI - Immobilized metal affinity chromatography on collapsed Langmuir-Blodgett iron(III) stearate films and iron(III) oxide nanoparticles for bottom-up phosphoproteomics.

PG - 181-90

LID - 10.1016/j.chroma.2016.03.044 [doi]

LID - S0021-9673(16)30309-0 [pii]

AB - Phosphorylation is the enzymatic reaction of site-specific phosphate transfer from energy-rich donors to the side chains of serine, threonine, tyrosine, and histidine residues in proteins. In living cells, reversible phosphorylation underlies a universal mechanism of intracellular signal transduction. In this context, analysis of the phosphoproteome is a prerequisite to better understand the cellular regulatory networks. Conventionally, due to the low contents of signaling proteins, selective enrichment of proteolytic phosphopeptides by immobilized metal affinity chromatography (IMAC) is performed prior to their LC-MS or -MS/MS analysis. Unfortunately, this technique still suffers from low selectivity and compromised analyte recoveries. To overcome these limitations, we propose IMAC systems comprising stationary phases based on collapsed Langmuir-Blodgett films of iron(III) stearate (FF) or iron(III) oxide nanoparticles (FO) and mobile phases relying on ammonia, piperidine and heptadecafluorooctanesulfonic acid (PFOS). Experiments with model phosphopeptides and phosphoprotein tryptic digests showed superior binding capacity, selectivity and recovery for both systems in comparison to the existing commercial analogs. As evidenced by LC-MS/MS analysis of the HeLa phosphoproteome, these features of the phases resulted in increased phosphoproteome coverage in comparison to the analogous commercially available phases, indicating that our IMAC protocol is a promising chromatographic tool for in-depth phosphoproteomic research.

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 LA - eng
 PT - Journal Article
 DEP - 20160319
 PL - Netherlands
 TA - J Chromatogr A
 JT - Journal of chromatography. A
 JID - 9318488
 SB - IM
 OTO - NOTNLM
 OT - Immobilized metal affinity chromatography (IMAC)
 OT - Iron oxide
 OT - Langmuir-Blodgett films
 OT - Perfluorooctanoic acid
 OT - Phosphopeptides
 OT - Phosphoproteomics
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 SO - J Chromatogr A. 2016 Apr 22;1443:181-90. doi: 10.1016/j.chroma.2016.03.044. Epub 2016 Mar 19.

PMID- 26916593

OWN - NLM

STAT- In-Data-Review

DA - 20160315

IS - 1873-3778 (Electronic)

IS - 0021-9673 (Linking)

VI - 1440

DP - 2016 Apr 1

TI - A hybrid fluororous monolithic capillary column with integrated nanoelectrospray ionization emitter for determination of perfluoroalkyl acids by nano-liquid chromatography-nanoelectrospray ionization-mass spectrometry/mass spectrometry.

PG - 66-73

LID - 10.1016/j.chroma.2016.02.025 [doi]

LID - S0021-9673(16)30124-8 [pii]

AB - A hybrid fluororous monolithic column was simply prepared via photo-initiated free radical polymerization of an acrylopropyl polyhedral oligomeric silsesquioxane (acryl-POSS) and a perfluorous monomer (2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoroheptyl acrylate) in UV-transparent fused-silica capillaries within 5min. The physical characterization of hybrid fluororous monolith, including scanning electron microscopy (SEM), Fourier transform infrared (FT-IR) spectroscopy, mercury intrusion porosimetry (MIP) and nitrogen adsorption/desorption measurement was performed. Chromatographic performance was also evaluated by capillary liquid chromatography (cLC). Due to the fluororous-fluororous interaction between fluororous monolith and analytes, fluorobenzenes could well be separated, and the column efficiencies reached 86,600-92,500plates/m at the velocity of 0.87mm/s for alkylbenzenes and 51,900-76,000plates/m at the velocity of 1.10mm/s for fluorobenzenes. Meanwhile, an approach to integrate nanoelectrospray ionization (ESI) emitter with hybrid fluororous monolithic column was developed for quantitative determination of perfluoroalkyl acids by nanoHPLC-ESI-MS/MS. The integration design could minimize extracolumn volume, thus excluding undesirable peak broadening and improving separation performance.

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LA - eng

PT - Journal Article

DEP - 20160218

PL - Netherlands

TA - J Chromatogr A

JT - Journal of chromatography. A

JID - 9318488

SB - IM

OTO - NOTNLM

OT - Capillary liquid chromatography

OT - Hybrid fluoruous monolith

OT - Integrated nanoelectrospray ionization emitter

OT - Perfluoroalkyl acids

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AID - 10.1016/j.chroma.2016.02.025 [doi]

PST - ppublish

SO - J Chromatogr A. 2016 Apr 1;1440:66-73. doi: 10.1016/j.chroma.2016.02.025. Epub 2016 Feb 18.

PMID- 27127908

OWN - NLM

STAT- In-Data-Review

DA - 20160507

IS - 1095-7103 (Electronic)

IS - 0021-9797 (Linking)

VI - 474

DP - 2016 Jul 15

TI - Adsorption behavior and mechanism of perfluorooctane sulfonate on nanosized inorganic oxides.

PG - 199-205

LID - 10.1016/j.jcis.2016.04.032 [doi]

LID - S0021-9797(16)30252-1 [pii]

AB - Adsorption of perfluorooctane sulfonate (PFOS) on manufactured nanoparticles (NPs) is critical for understanding their transport and fate in aquatic environments. In this study, the adsorption behavior of PFOS on nanosized Al_2O_3 , Fe_2O_3 , SiO_2 and TiO_2 was examined in terms of adsorption isotherms and influences of pH, ionic strength and heavy metallic cations. The nano-oxides had much higher adsorption capacities than bulk particles due to higher surface hydroxyl density. PFOS adsorption showed strong pH dependence due to different species of surface hydroxyl groups on nano-oxides. Besides electrostatic interaction, sulfonic group of PFOS possibly formed hydrogen bonds on the surface of nano-oxides. Because of the bridging effect in the co-adsorption process, the coexisting PFOS and heavy metallic cations greatly enhanced their adsorption onto the nano-oxides. Comparative adsorption of different perfluorinated sulfonates indicated the possible formation of bilayer PFOS adsorption on the nano-oxides, leading to the enhanced Cu(II) adsorption on the sulfonic groups of PFOS on the surfaces through electrostatic interaction.

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LA - eng

PT - Journal Article

DEP - 20160422

PL - United States

TA - J Colloid Interface Sci

JT - Journal of colloid and interface science

JID - 0043125
 SB - IM
 OTO - NOTNLM
 OT - Adsorption behavior
 OT - Adsorption mechanism
 OT - Heavy metal
 OT - Nano-oxides
 OT - Perfluorooctane sulfonate
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 AID - 10.1016/j.jcis.2016.04.032 [doi]
 PST - ppublish
 SO - J Colloid Interface Sci. 2016 Jul 15;474:199-205. doi:
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PMID- 27156087
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160517
 IS - 1095-7103 (Electronic)
 IS - 0021-9797 (Linking)
 VI - 475
 DP - 2016 Aug 1
 TI - The effects of alkylammonium counterions on the aggregation of fluorinated surfactants and surfactant ionic liquids.
 PG - 72-81
 LID - 10.1016/j.jcis.2016.04.039 [doi]
 LID - S0021-9797(16)30259-4 [pii]
 AB - The effects of organic counterions with varying carbon number on surfactant aggregation have been analysed by coupling perfluorooctanoate surfactant anions with various alkylammonium counterions. Both the degree of substitution (primary to tertiary) and alkyl chain length (0-3 carbons) of the counterions were varied to provide a comprehensive matrix of geometries and lipophilicities. Surface activity was measured using pendant drop tensiometry, while temperature-controlled small-angle neutron scattering was used to probe changes in aggregation morphology. It was found that the use of such alkylammonium counterions resulted in a strong preference for bilayer formation even at low surfactant concentration (<2wt%), when compared to simple inorganic counterions such as sodium which favour near-spherical micelles. At increased temperatures, some counterions led to unique phase behaviour wherein a transition between two structurally different lamellar phases is seen, rationalised as a transition into a microscopic phase separation wherein a surfactant-rich lamellar phase coexists with a dilute micellar phase. The results indicate that aggregation is controlled by a delicate balance of counterion size, hydrophilicity and diffuseness of charge, providing new methods for the subtle control of surfactant solutions.
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 PT - Journal Article
 DEP - 20160426
 PL - United States
 TA - J Colloid Interface Sci
 JT - Journal of colloid and interface science
 JID - 0043125
 SB - IM
 OTO - NOTNLM
 OT - Aggregation
 OT - Fluorosurfactant
 OT - SANS
 OT - Surfactant ionic liquid
 EDAT- 2016/05/09 06:00
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 AID - S0021-9797(16)30259-4 [pii]
 AID - 10.1016/j.jcis.2016.04.039 [doi]
 PST - ppublish
 SO - J Colloid Interface Sci. 2016 Aug 1;475:72-81. doi: 10.1016/j.jcis.2016.04.039. Epub 2016 Apr 26.

PMID- 26828276
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160214
 IS - 1095-7103 (Electronic)
 IS - 0021-9797 (Linking)
 VI - 468
 DP - 2016 Apr 15
 TI - Fabrication of ordered honeycomb amphiphobic films with extremely low fluorine content.
 PG - 70-7
 LID - 10.1016/j.jcis.2016.01.035 [doi]
 LID - S0021-9797(16)30037-6 [pii]
 AB - A series of poly(methyl methacrylate)-block-poly(perfluoroalkyl ethyl acrylate) (PMMA-b-PFAEA) with various fluorine content were employed to fabricate honeycomb ordered films via breath figure strategy. The influences of temperature, concentration, relative humidity, fluorine content on the morphology of porous films were investigated. Wetting behavior including hydrophobic property and wetting state of the films was studied. High surface roughness from the porous structure and low surface free energy from the increasing PFAEA fraction led to

the enhancement of hydrophobicity. Additionally, fabrication of porous films by the mixture of PMMA and PMMA-b-PFAEA was investigated. Ordered porous film with excellent hydrophobicity and oleophobicity was obtained with only 7wt% of PMMA-b-PFAEA by simultaneous processes of breath figure mechanism and phase separation. This work facilitates our further comprehension of the mechanism of breath figure and contributes to the fabrication of porous film from fluorinated copolymers. Meanwhile, it opens a new route to prepare films possessing excellent hydrophobicity and oleophobicity with extremely low fluorine content.

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LA - eng

PT - Journal Article

DEP - 20160118

PL - United States

TA - J Colloid Interface Sci

JT - Journal of colloid and interface science

JID - 0043125

SB - IM

OTO - NOTNLM

OT - Amphiphobic

OT - Breath figure

OT - Fluorinated polymer

EDAT- 2016/02/02 06:00

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 AID - S0021-9797(16)30037-6 [pii]
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 SO - J Colloid Interface Sci. 2016 Apr 15;468:70-7. doi: 10.1016/j.jcis.2016.01.035.
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OWN - NLM

STAT- In-Data-Review

DA - 20160419

IS - 1001-0742 (Print)

IS - 1001-0742 (Linking)

VI - 42

DP - 2016 Apr

TI - Temperature effect on photolysis decomposing of perfluorooctanoic acid.

PG - 126-33

LID - 10.1016/j.jes.2015.05.008 [doi]

LID - S1001-0742(15)00253-3 [pii]

AB - Perfluorooctanoic acid (PFOA) is recalcitrant to degrade and mineralize. Here, the effect of temperature on the photolytic decomposition of PFOA was investigated. The decomposition of PFOA was enhanced from 34% to 99% in 60min of exposure when the temperature was increased from 25 to 85 degrees C under UV light (201-600nm). The limited degree of decomposition at 25 degrees C was due to low quantum yield, which was increased by a factor of 12 at 85 degrees C. Under the imposed conditions, the defluorination ratio increased from 8% at 25 degrees C to 50% at 85 degrees C in 60min. Production of perfluorinated carboxylic acids (PFCAs, C7-C5), PFCAs (C4-C3) and TFA (trifluoroacetic acid, C2) accelerated and attained a maximum within 30 to 90min at 85 degrees C. However, these reactions did not occur at 25 degrees C despite extended irradiation to 180min. PFOA was decomposed in a step-wise process by surrendering one CF₂ unit. In each cyclical process, increased temperature enhanced the quantum yields of irradiation and reactions between water molecules and intermediates radicals. The energy consumption for removing each mumol of PFOA was reduced from 82.5kJ at 25 degrees C to 10.9kJ at 85 degrees C using photolysis. Photolysis coupled with heat achieved high rates of PFOA degradation and defluorination.

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LA - eng

PT - Journal Article

DEP - 20150702

PL - Netherlands
 TA - J Environ Sci (China)
 JT - Journal of environmental sciences (China)
 JID - 100967627
 SB - IM
 OTO - NOTNLM
 OT - PFOA
 OT - Perfluorooctanoic acid
 OT - Photolysis
 OT - Temperature effect
 EDAT- 2016/04/20 06:00
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 PHST- 2015/04/01 [received]
 PHST- 2015/05/07 [revised]
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 AID - S1001-0742(15)00253-3 [pii]
 AID - 10.1016/j.jes.2015.05.008 [doi]
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 SO - J Environ Sci (China). 2016 Apr;42:126-33. doi: 10.1016/j.jes.2015.05.008. Epub 2015 Jul 2.

PMID- 27106518

OWN - NLM

STAT- Publisher

DA - 20160515

LR - 20160515

IS - 1873-3336 (Electronic)

IS - 0304-3894 (Linking)

DP - 2016 Apr 7

TI - A nationwide survey of perfluorinated alkyl substances in waters, sediment and biota collected from aquatic environment in Vietnam: Distributions and bioconcentration profiles.

LID - S0304-3894(16)30351-X [pii]

LID - 10.1016/j.jhazmat.2016.04.010 [doi]

AB - Water, sediment, various tissues of fish, crustacean, gastropod and bivalve were collected from major river basins in Vietnam and analyzed for the presence of perfluorinated alkyl substances (PFASs). Furthermore, the occurrence of PFASs in coastal, tap and well waters collected from eight different regions in Vietnam was investigated. PFOA and PFOS were consistently detected as the dominant PFASs in surface waters. The greatest concentrations of PFOA (53.5ngL⁻¹) and PFOS (40.2ngL⁻¹) were found in a surface water sample collected from a channel that receives wastewater treatment plant discharges. PFOS and PFHxS were found as the predominant PFASs in sediments. The greatest PFAS concentration in biota was 16.9ng PFUnDA g⁻¹ wet weight found in a fish liver. Some long-chain PFCAs including PFNA, PFUnDA and PFTrDA as well as PFHxS were more abundant than short-chain PFASs in biota tissues. The measured concentrations of PFOS and PFOA in surface and tap waters were below the provisional health advisory. The rank order of mean bioconcentration factor of PFOS in biota was; crustacean (115L/kg), gastropod (1117L/kg), fish (1120L/kg) and bivalve (2110L/kg). This study provides baseline information for a better understanding of PFASs contamination in Vietnam.

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LA - ENG

PT - JOURNAL ARTICLE

DEP - 20160407

TA - J Hazard Mater

JT - Journal of hazardous materials

JID - 9422688

OTO - NOTNLM

OT - Aquatic environment

OT - Bioconcentration factor

OT - PFOA

OT - PFOS

OT - Vietnam

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PHST- 2015/12/26 [received]

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AID - S0304-3894(16)30351-X [pii]

AID - 10.1016/j.jhazmat.2016.04.010 [doi]

PST - aheadofprint

SO - J Hazard Mater. 2016 Apr 7. pii: S0304-3894(16)30351-X. doi:
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PMID- 27184593

OWN - NLM

STAT- Publisher

DA - 20160517

LR - 20160517

IS - 1873-3336 (Electronic)

IS - 0304-3894 (Linking)

DP - 2016 Apr 28

TI - Adsorptive removal of emerging polyfluoroalkyl substances F-53B and PFOS by
anion-exchange resin: A comparative study.

LID - S0304-3894(16)30410-1 [pii]

LID - 10.1016/j.jhazmat.2016.04.069 [doi]

AB - Chrome plating is an important emission source of perfluorinated compounds (PFCs)
industrial uses in China, where two commercial products potassium
2-(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6-dodecafluorohexyloxy) (F-53B) and
perfluorooctane sulfonate (PFOS) are applied as mist suppressant, causing
non-negligible environmental risk. In this paper, anion-exchange resin IRA67 was

evaluated for F-53B and PFOS removal from simulated and actual wastewater. Adsorption kinetics exhibited higher adsorption velocity and capacity of IRA67 for PFOS than F-53B due to their difference in molecular structures. Adsorption isotherms demonstrated the adsorption capacity of F-53B and PFOS on IRA67 was 4.2mmol/g and 5.5mmol/g, respectively. Because of the deprotonating of amine groups, solution pH had significant effect on IRA67 at pH>10. The results indicated that besides anion exchange other interactions including hydrophobic interaction and the formation of micelles or hemi-micelles were all involved in adsorption process. Coexisting sulfate and chromate in wastewater decreased adsorption capacities of F-53B and PFOS. The spent resin could be regenerated by the NaCl/NaOH and methanol mixed solution. In the mixed system and actual wastewater IRA67 can simultaneously remove F-53B and PFOS without obvious preference but the removal percent can be affected by competitive effect.

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LA - ENG

PT - JOURNAL ARTICLE

DEP - 20160428

TA - J Hazard Mater

JT - Journal of hazardous materials

JID - 9422688

OTO - NOTNLM

OT - Adsorption

OT - Anion-exchange resin

OT - F-53B

OT - PFOS

OT - Wastewater

EDAT- 2016/05/18 06:00

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CRDT- 2016/05/18 06:00

PHST- 2016/02/09 [received]

PHST- 2016/04/11 [revised]
 PHST- 2016/04/28 [accepted]
 AID - S0304-3894(16)30410-1 [pii]
 AID - 10.1016/j.jhazmat.2016.04.069 [doi]
 PST - aheadofprint
 SO - J Hazard Mater. 2016 Apr 28. pii: S0304-3894(16)30410-1. doi:
 10.1016/j.jhazmat.2016.04.069.

PMID- 27156398

OWN - NLM

STAT- Publisher

DA - 20160509

LR - 20160510

IS - 1873-3336 (Electronic)

IS - 0304-3894 (Linking)

DP - 2016 Apr 22

TI - Deriving environmental quality standards for perfluorooctanoic acid (PFOA) and related short chain perfluorinated alkyl acids.

LID - S0304-3894(16)30396-X [pii]

LID - 10.1016/j.jhazmat.2016.04.055 [doi]

AB - The evidence that in Northern Italy significant sources of perfluoroalkylacids (PFAA) are present induced the Italian government to establish a Working Group on Environmental Quality Standard (EQS) for PFAA in order to include some of them in the list of national specific pollutants for surface water monitoring according to the Water Framework Directive (2000/60/EC). The list of substances included perfluorooctanoate (PFOA) and related short chain PFAA such as perfluorobutanoate (PFBA), perfluoropentanoate (PFPeA), perfluorohexanoate (PFHxA) and perfluorobutanesulfonate (PFBS), which is a substitute of perfluorooctanesulfonate. For each of them a dossier collects available data on regulation, physico-chemical properties, emission and sources, occurrence, acute and chronic toxicity on aquatic species and mammals, including humans. Quality standards (QS) were derived for the different protection objectives (pelagic and benthic communities, predators by secondary poisoning, human health via consumption of fishery products and water) according to the European guideline. The lowest QS is finally chosen as the relevant EQS. For PFOA a QS for biota was derived for protection from secondary poisoning and the corresponding QS for water was back-calculated, obtaining a freshwater EQS of 0.1µg/L. For PFBA, PFPeA, PFHxA and PFBS threshold limits proposed for drinking waters were adopted as EQS.

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 LA - ENG
 PT - JOURNAL ARTICLE
 DEP - 20160422
 TA - J Hazard Mater
 JT - Journal of hazardous materials
 JID - 9422688
 OTO - NOTNLM
 OT - Environmental quality standard
 OT - Hazard/risk assessment
 OT - PFOA
 OT - Perfluorinated compounds
 OT - Short chain perfluoroalkyl acids
 EDAT- 2016/05/10 06:00
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 PHST- 2016/02/05 [received]
 PHST- 2016/04/18 [revised]
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 AID - S0304-3894(16)30396-X [pii]
 AID - 10.1016/j.jhazmat.2016.04.055 [doi]
 PST - aheadofprint
 SO - J Hazard Mater. 2016 Apr 22. pii: S0304-3894(16)30396-X. doi:
 10.1016/j.jhazmat.2016.04.055.

PMID- 26775106
 OWN - NLM

STAT- In-Data-Review

DA - 20160229

IS - 1873-3336 (Electronic)

IS - 0304-3894 (Linking)

VI - 307

DP - 2016 Apr 15

TI - Shifts in production of perfluoroalkyl acids affect emissions and concentrations in the environment of the Xiaoqing River Basin, China.

PG - 55-63

LID - 10.1016/j.jhazmat.2015.12.059 [doi]

LID - S0304-3894(15)30315-0 [pii]

AB - Perfluoroalkyl acids (PFAAs) have been widely used in surfactant applications, especially as processing acids for fluoropolymer production. This study provides an analysis of sources of certain PFAAs emitted from the intensive fluoropolymer facilities in the Xiaoqing River Basin of China. Concentrations of perfluorooctanoic acid (PFOA) as great as 0.97mg/L in surface water and 10.5µg/g dry weight in surface sediment have been detected near the effluent of one facility (F1) that produces polytetrafluoroethylene (PTFE) and other fluoropolymers with massive capacity. With the great emission of PFAAs to water in natural conditions, the log KOC values decreased for short-chain PFCAs. Mass loads of PFAAs indicated that emissions of PFAAs from other facilities or sources were much less than those from F1, which emitted 174kg/d of PFAAs including 159kg/d of PFOA to the rivers. Even though production and emissions of PFOA have been strictly controlled in other countries since 2006, production of PFOA as well as several other fluoropolymers that use PFOA as processing aids has been increasing at F1 in recent years. We recommended that production shift should be taken into consideration in PFOA elimination actions.

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LA - eng

PT - Journal Article

DEP - 20160102

PL - Netherlands

TA - J Hazard Mater

JT - Journal of hazardous materials

JID - 9422688

SB - IM

OTO - NOTNLM

OT - Fluoropolymer

OT - PFOA

OT - Source

OT - Xiaoqing River

EDAT- 2016/01/18 06:00

MHDA- 2016/01/18 06:00

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PHST- 2015/12/08 [revised]

PHST- 2015/12/28 [accepted]

PHST- 2016/01/02 [aheadofprint]

AID - S0304-3894(15)30315-0 [pii]

AID - 10.1016/j.jhazmat.2015.12.059 [doi]

PST - ppublish

SO - J Hazard Mater. 2016 Apr 15;307:55-63. doi: 10.1016/j.jhazmat.2015.12.059. Epub
2016 Jan 2.

PMID- 27014960

OWN - NLM

STAT- In-Data-Review

DA - 20160603

IS - 1520-6904 (Electronic)

IS - 0022-3263 (Linking)

VI - 81

IP - 11

DP - 2016 Jun 3

TI - Enantioselective Synthesis of Dideoxy-tetrafluorinated Hexoses.

PG - 4434-53

LID - 10.1021/acs.joc.6b00302 [doi]

AB - Carbohydrates typically have low affinities to protein binding sites, and the
development of carbohydrate mimetics with improved binding is therefore of
interest. Tetrafluorination of monosaccharides is one of the strategies currently

under investigation for that purpose. The synthesis of the required tetrafluorinated monosaccharides is achieved by a fluorinated building block approach. The enantioselective synthesis of tetrafluorinated hexose derivatives is described here, in both pyranose and furanose forms. In particular, the optimization of the enantioselective synthesis of the previously reported 2,3-dideoxy-2,2,3,3-tetrafluoro-d-threo-hexopyranose 3, 2,3-dideoxy-2,2,3,3-tetrafluoro-d-threo-hexofuranose 4, and 2,3-dideoxy-2,2,3,3-tetrafluoro-d-erythro-hexopyranose 5 is described as is the synthesis of two novel sugar derivatives, 3,4-dideoxy-3,3,4,4-tetrafluoro-d-threo-hexopyranose 6 and 3,4-dideoxy-3,3,4,4-tetrafluoro-d-erythro-hexopyranose 7. The key step of all syntheses is a perfluoroalkyl lithium-mediated C-C bond formation, either intramolecular or intermolecular, which proceeds in good to excellent yields. NMR and X-ray crystallographic analyses of the tetrafluorinated methyl pyranoside derivatives confirm their (4)C1 conformation.

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LA - eng

PT - Journal Article

DEP - 20160406

PL - United States

TA - J Org Chem

JT - The Journal of organic chemistry

JID - 2985193R

SB - IM

EDAT- 2016/03/26 06:00

MHDA- 2016/03/26 06:00
 CRDT- 2016/03/26 06:00
 PHST- 2016/04/06 [aheadofprint]
 AID - 10.1021/acs.joc.6b00302 [doi]
 PST - ppublish
 SO - J Org Chem. 2016 Jun 3;81(11):4434-53. doi: 10.1021/acs.joc.6b00302. Epub 2016 Apr 6.

PMID- 26980724
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160415
 IS - 1520-6904 (Electronic)
 IS - 0022-3263 (Linking)
 VI - 81
 IP - 8
 DP - 2016 Apr 15
 TI - Cu-Catalyzed Multicomponent Reaction of Styrenes, Perfluoroalkyl Halide, Alcohol, and tert-Butyl Hydroperoxide: One-Pot Synthesis of (Z)-beta-Alkoxyperfluoroalkenone.
 PG - 3103-11
 LID - 10.1021/acs.joc.5b02664 [doi]
 AB - An efficient synthesis of Z-perfluoroalkyl-substituted enones by a multicomponent reaction strategy has been described. A variety of elusive perfluoroalkylated enones are furnished under mild reaction conditions in good yields with unique chemo- and stereoselectivity. A sequence of radical-mediated Kornblum-DeLaMare reaction, Michael addition, and HF elimination is proposed for the mechanism.
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 LA - eng
 PT - Journal Article
 DEP - 20160325
 PL - United States
 TA - J Org Chem
 JT - The Journal of organic chemistry
 JID - 2985193R
 SB - IM
 EDAT- 2016/03/17 06:00
 MHDA- 2016/03/17 06:00
 CRDT- 2016/03/17 06:00
 PHST- 2016/03/25 [aheadofprint]
 AID - 10.1021/acs.joc.5b02664 [doi]
 PST - ppublish
 SO - J Org Chem. 2016 Apr 15;81(8):3103-11. doi: 10.1021/acs.joc.5b02664. Epub 2016 Mar 25.

PMID- 26982570
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160407
 IS - 1520-5207 (Electronic)
 IS - 1520-5207 (Linking)
 VI - 120
 IP - 13
 DP - 2016 Apr 7
 TI - PFC and Triglyme for Li-Air Batteries: A Molecular Dynamics Study.
 PG - 3370-7
 LID - 10.1021/acs.jpcc.5b12075 [doi]
 AB - In this work, we present an all-atom molecular dynamics (MD) study of triglyme and perfluorinated carbons (PFCs) using classical atomistic force fields. Triglyme is a typical solvent used in nonaqueous Li-air battery cells. PFCs were recently reported to increase oxygen availability in such cells. We show that O₂ diffusion in two specific PFC molecules (C₆F₁₄ and C₈F₁₈) is significantly faster than in triglyme. Furthermore, by starting with two very different initial configurations for our MD simulation, we demonstrate that C₈F₁₈ and triglyme do not mix. The mutual solubility of these molecules is evaluated both theoretically and experimentally, and a qualitative agreement is found. Finally, we show that the solubility of O₂ in C₈F₁₈ is considerably higher than in triglyme. The significance of these results to Li-air batteries is discussed.

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 PT - Journal Article
 DEP - 20160324
 PL - United States
 TA - J Phys Chem B
 JT - The journal of physical chemistry. B
 JID - 101157530
 SB - IM
 EDAT- 2016/03/17 06:00
 MHDA- 2016/03/17 06:00
 CRDT- 2016/03/17 06:00
 PHST- 2016/03/24 [aheadofprint]
 AID - 10.1021/acs.jpcb.5b12075 [doi]
 PST - ppublish
 SO - J Phys Chem B. 2016 Apr 7;120(13):3370-7. doi: 10.1021/acs.jpcb.5b12075. Epub
 2016 Mar 24.

 PMID- 26963137
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160407
 IS - 1520-5207 (Electronic)
 IS - 1520-5207 (Linking)
 VI - 120
 IP - 13
 DP - 2016 Apr 7
 TI - Mapping and Tuning the Fluorescence of Perfluorinated Polyanilines Synthesized
 through Liquid-Liquid Interfaces.
 PG - 3441-54
 LID - 10.1021/acs.jpcb.6b00739 [doi]
 AB - A series of light-emitting perfluorinated polyanilines were synthesized by the
 oxidative polymerization of 3-perfluorooctyl aniline through a variety of
 aqueous/organic interfaces. According to the interfacial tension between the two
 solvents (the organic being chloroform, dichloromethane, perfluorinated ether,
 toluene, or o-dichlorobenzene), we obtain distinctive classes of materials based
 on the crystal packing, protonation, and oxidation state of the polymeric chains.
 We distinguish between soluble fractions with a distinctive, strong, and
 red-shifted photoluminescence pattern and an insoluble precipitate which can be
 subsequently solubilized in a mixture of acetone and toluene. The emission

maximum for the insoluble fraction is located in the ultraviolet or blue region with a small Stokes shift; maxima for the soluble counterparts are in the green to yellow region. The soluble derivatives demonstrate a significantly smaller band gap compared to the monomer and large Stokes shifts up to 163 nm; the emission maximum for the most red-shifted emission was located at $\lambda_{em} = 548$ nm. Their redox activity toward silver nanoparticles, their sensor reactivity with organic acid and bases, and the subsequent changes in the optical properties were demonstrated and the structure of the materials was evaluated with NMR, X-ray diffraction, and FTIR/Raman spectroscopy.

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LA - eng

PT - Journal Article

DEP - 20160323

PL - United States

TA - J Phys Chem B

JT - The journal of physical chemistry. B

JID - 101157530

SB - IM

EDAT- 2016/03/11 06:00

MHDA- 2016/03/11 06:00

CRDT- 2016/03/11 06:00

PHST- 2016/03/23 [aheadofprint]

AID - 10.1021/acs.jpcb.6b00739 [doi]

PST - ppublish

SO - J Phys Chem B. 2016 Apr 7;120(13):3441-54. doi: 10.1021/acs.jpcb.6b00739. Epub 2016 Mar 23.

PMID- 27055098

OWN - NLM

STAT- In-Data-Review

DA - 20160421

IS - 1948-7185 (Electronic)

IS - 1948-7185 (Linking)

VI - 7

IP - 8

DP - 2016 Apr 21

TI - Probing the Lone Pair...pi-Hole Interaction in Perfluorinated Heteroaromatic Rings: The Rotational Spectrum of Pentafluoropyridine.Water.

PG - 1513-7

LID - 10.1021/acs.jpcclett.6b00473 [doi]

AB - The rotational spectrum of the weakly bound complex pentafluoropyridine.water has been investigated with pulsed jet Fourier transform microwave spectroscopy. From the analysis of the rotational parameters of the parent species and of three water isotopologues, the structural arrangement of the adduct has been unambiguously established. The results show that the full ring fluorination of pyridine has a dramatic effect on its binding properties: It inverts the electron density distribution above the ring, creating a pi-hole, with respect to the typical pi-cloud of benzene and pyridine. In the complex the water moiety lies

above the aromatic ring with the oxygen lone pairs pointing toward its center. This lone pair...pi-hole interaction stabilizes the adduct, and it is more stable than the in-plane O-H...N hydrogen bond normally found in the complexes involving nitrogen heterocyclic aromatic rings. Evidence of a large amplitude motion involving the weakly bound water molecule has also been observed and discussed.

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LA - eng

PT - Journal Article

DEP - 20160411

PL - United States

TA - J Phys Chem Lett

JT - The journal of physical chemistry letters

JID - 101526034

SB - IM

EDAT- 2016/04/08 06:00

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PHST- 2016/04/11 [aheadofprint]

AID - 10.1021/acs.jpcllett.6b00473 [doi]

PST - ppublish

SO - J Phys Chem Lett. 2016 Apr 21;7(8):1513-7. doi: 10.1021/acs.jpcllett.6b00473. Epub 2016 Apr 11.

PMID- 27021527

OWN - NLM

STAT- In-Data-Review

DA - 20160412

IS - 1473-0189 (Electronic)

IS - 1473-0189 (Linking)

VI - 16

IP - 8

DP - 2016 Apr 12

TI - Photolysis-driven merging of microdroplets in microfluidic chambers.

PG - 1484-91

LID - 10.1039/c6lc00024j [doi]

AB - Photolysis of microdroplets, stabilized by aminoquinoline-derived photosensitive surfactants composed of polyethyleneglycol/perfluorinated polyether (PEG/PFPE)

diblock amphiphiles by using 355 nm ps pulsed laser light, resulted in rapid controlled coalescence of targeted microdroplets offering the prospect of a novel type of droplet merging with high stereospatial integrity for microfluidic systems.

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LA - eng

PT - Journal Article

PL - England

TA - Lab Chip

JT - Lab on a chip

JID - 101128948

SB - IM

EDAT- 2016/03/30 06:00

MHDA- 2016/03/30 06:00

CRDT- 2016/03/30 06:00

AID - 10.1039/c6lc00024j [doi]

PST - ppublish

SO - Lab Chip. 2016 Apr 12;16(8):1484-91. doi: 10.1039/c6lc00024j.

PMID- 27077637

OWN - NLM

STAT- In-Data-Review

DA - 20160504
 IS - 1520-5827 (Electronic)
 IS - 0743-7463 (Linking)
 VI - 32
 IP - 17
 DP - 2016 May 3
 TI - Superoleophobic Surfaces Obtained via Hierarchical Metallic Meshes.
 PG - 4134-40
 LID - 10.1021/acs.langmuir.6b00248 [doi]
 AB - Hierarchical metallic surfaces demonstrating pronounced water and oil repellence are reported. The surfaces were manufactured with stainless-steel microporous meshes, which were etched with perfluorononanoic acid. As a result, a hierarchical relief was created, characterized by roughness at micro- and sub-microscales. Pronounced superoleophobicity was registered with regard to canola, castor, sesame, flax, crude (petroleum), and engine oils. Relatively high sliding angles were recorded for 5 μ L turpentine, olive, and silicone oil droplets. The stability of the Cassie-like air trapping wetting state, established with water/ethanol solutions, is reported. The omniphobicity of the surfaces is due to the interplay of their hierarchical relief and surface fluorination.
 FAU - Grynyov, Roman
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 FAU - Bormashenko, Edward
 AU - Bormashenko E
 FAU - Whyman, Gene
 AU - Whyman G
 FAU - Bormashenko, Yelena
 AU - Bormashenko Y
 FAU - Musin, Albina
 AU - Musin A
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 FAU - Kolagatla, Srikanth
 AU - Kolagatla S
 LA - eng
 PT - Journal Article
 DEP - 20160422
 PL - United States
 TA - Langmuir
 JT - Langmuir : the ACS journal of surfaces and colloids
 JID - 9882736
 SB - IM

EDAT- 2016/04/15 06:00
 MHDA- 2016/04/15 06:00
 CRDT- 2016/04/15 06:00
 PHST- 2016/04/22 [aheadofprint]
 AID - 10.1021/acs.langmuir.6b00248 [doi]
 PST - ppublish
 SO - Langmuir. 2016 May 3;32(17):4134-40. doi: 10.1021/acs.langmuir.6b00248. Epub 2016 Apr 22.

PMID- 27054378
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160419
 IS - 1520-5827 (Electronic)
 IS - 0743-7463 (Linking)
 VI - 32
 IP - 15
 DP - 2016 Apr 19
 TI - Janus Nanofilms.
 PG - 3623-9
 LID - 10.1021/acs.langmuir.6b00672 [doi]
 AB - To make a two-dimensional Janus object, the perfluorinated anionic polyelectrolyte Nafion was adsorbed to the surface of ultrathin films of polyelectrolyte complex. Nafion changed the wetting characteristics of the polyelectrolyte multilayer (PEMU) of poly(diallyldimethylammonium) and poly(styrenesulfonate) from hydrophilic to hydrophobic. PEMUs assembled on aluminum substrates and terminated with Nafion could be released by exposure to alkali solution, producing free-floating films in the 100 nm thickness regime. Water contact angle measurements showed a strong difference in hydrophilicity between the two sides of this Janus film, which was further characterized using atomic force microscopy and X-ray photoelectron spectroscopy (XPS). XPS revealed different fluorine contents on both sides of the PEMU, which could be translated to a Nafion gradient through the film. Fourier transform infrared spectroscopy showed the Nafion-containing films were much more resistant to decomposition by high salt concentration.
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 LA - eng
 PT - Journal Article
 DEP - 20160407
 PL - United States
 TA - Langmuir
 JT - Langmuir : the ACS journal of surfaces and colloids
 JID - 9882736
 SB - IM
 EDAT- 2016/04/08 06:00
 MHDA- 2016/04/08 06:00
 CRDT- 2016/04/08 06:00
 PHST- 2016/04/07 [aheadofprint]
 AID - 10.1021/acs.langmuir.6b00672 [doi]

PST - ppublish

SO - Langmuir. 2016 Apr 19;32(15):3623-9. doi: 10.1021/acs.langmuir.6b00672. Epub 2016 Apr 7.

PMID- 27018461

OWN - NLM

STAT- In-Data-Review

DA - 20160412

IS - 1520-5827 (Electronic)

IS - 0743-7463 (Linking)

VI - 32

IP - 14

DP - 2016 Apr 12

TI - Preparation of Fluorous Solvent-Dispersed Fe₃O₄ Nanocrystals: Role of Oxygen in Ligand Exchange.

PG - 3348-53

LID - 10.1021/acs.langmuir.6b00526 [doi]

AB - Perfluorinated ligand-passivated Fe₃O₄ nanocrystals were prepared through a biphasic ligand exchange method. It was found that dissolved oxygen in the reaction media predominantly determined the degree of ligand exchange and the resultant dispersion property of nanocrystals in a fluorous solvent. X-ray photoelectron spectroscopic analyses revealed that dissolved oxygen molecules bind to the surface iron species of nanocrystals in competition with the carboxylate moiety of ligands during the exchange reaction, lowering the degree of ligand exchange and colloidal stability significantly. Reducing the oxygen content of the fluorous phase by N₂ bubbling was found to result in a highly stable dispersion of phase-transferred Fe₃O₄ nanocrystals with a single-particle size distribution maintained for a few months.

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LA - eng

PT - Journal Article

DEP - 20160404

PL - United States

TA - Langmuir

JT - Langmuir : the ACS journal of surfaces and colloids

JID - 9882736

SB - IM

EDAT- 2016/03/29 06:00

MHDA- 2016/03/29 06:00

CRDT- 2016/03/29 06:00

PHST- 2016/04/04 [aheadofprint]

AID - 10.1021/acs.langmuir.6b00526 [doi]

PST - ppublish

SO - Langmuir. 2016 Apr 12;32(14):3348-53. doi: 10.1021/acs.langmuir.6b00526. Epub 2016 Apr 4.

PMID- 26948293

OWN - NLM

STAT- In-Data-Review

DA - 20160425

IS - 1879-3363 (Electronic)

IS - 0025-326X (Linking)

VI - 105

IP - 1

DP - 2016 Apr 15

TI - Perfluoroalkylated substances (PFASs) and legacy persistent organic pollutants (POPs) in halibut and shrimp from coastal areas in the far north of Norway: Small survey of important dietary foodstuffs for coastal communities.

PG - 81-7

LID - 10.1016/j.marpolbul.2016.02.053 [doi]

LID - S0025-326X(16)30109-6 [pii]

AB - Halibut (*Hippoglossus hippoglossus*) and shrimps (*Pandalus borealis*) are regular foodstuffs for communities in northern Norway and important species for the coastal fishing industry. This is the first study to present a comprehensive overview of the contaminant status of these species, with emphasis on unregulated perfluoroalkylated substances (PFAS). The contaminant concentrations were low and within tolerable levels for human dietary exposure. Median Sigma polychlorinated biphenyls (PCB) were 4.9 and 2.5 ng/g ww for halibut and unpeeled shrimps, respectively. Concentrations of perfluorooctane sulfonate (PFOS) - the most abundant PFASs - were 0.9 and 2.7 ng/g ww in halibut and shrimp, respectively. The halibut fillets were dominated by PCBs, which contributed to 50% of the total POPs load, followed by Sigma DDTs; 26% and PFASs (18%), whereas shrimps were dominated by PFASs (74%). Sigma PBDEs (polybrominated diphenyl ethers) contributed to 1-4% of the total POP load. Local sources are not contributing significantly to the contaminant burden in these species.

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 LA - eng
 PT - Journal Article
 DEP - 20160302
 PL - England
 TA - Mar Pollut Bull
 JT - Marine pollution bulletin
 JID - 0260231
 SB - IM
 OTO - NOTNLM
 OT - Arctic
 OT - Fish
 OT - PBDE
 OT - PCB
 OT - PFCA
 OT - PFOS
 EDAT- 2016/03/08 06:00
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 PHST- 2015/12/17 [received]
 PHST- 2016/02/12 [revised]
 PHST- 2016/02/19 [accepted]
 PHST- 2016/03/02 [aheadofprint]
 AID - S0025-326X(16)30109-6 [pii]
 AID - 10.1016/j.marpolbul.2016.02.053 [doi]
 PST - ppublish
 SO - Mar Pollut Bull. 2016 Apr 15;105(1):81-7. doi: 10.1016/j.marpolbul.2016.02.053.
 Epub 2016 Mar 2.

PMID- 27057840
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160409
 IS - 1536-5964 (Electronic)
 IS - 0025-7974 (Linking)
 VI - 95
 IP - 14
 DP - 2016 Apr
 TI - Proximal Femoral Nail Antirotation Versus Reverse Less Invasive Stabilization
 System-distal Femur for Treating Proximal Femoral Fractures: A Meta-analysis.
 PG - e3168
 LID - 10.1097/MD.00000000000003168 [doi]
 AB - The aim of this study was to compare the effectiveness and safety of 2 surgical
 techniques that are used to treat proximal femoral fractures. A systematic
 literature search (up to December 2014) was conducted in Medline, Embase, PubMed,
 and The Cochrane Central Register of Controlled Trials to screen for studies
 comparing proximal femoral nail antirotation (PFNA) with less invasive
 stabilization system-distal femur (LISS-DF) for proximal femoral fractures. Two
 authors independently assessed the methodological quality of the included studies
 and extracted data. Surgical information and postoperative outcomes were
 analyzed. A total of 7 studies with 361 patients who satisfied the eligibility
 criteria included 3 randomized controlled trials and 4 case-controlled trials
 associated with PFNA versus LISS in treating proximal femoral fractures. Our
 results demonstrated that there was a significant reduction in hospital stay and

time to weight-bearing ambulation and bone healing for PFNA compared with LISS (odds ratio [OR] -1.48, 95% confidence interval [CI] -2.92 to -0.05; OR -7.08, 95% CI -8.32 to -5.84; OR -2.71, 95% CI -4.76 to 0.67). No statistically significant difference was observed between the 2 groups for operative time, blood loss volume, Harris hip score, and incidence of complications. Based on the results of this analysis, we inferred that PFNA is safer and more effective than reverse LISS-DF in patients undergoing osteosynthesis for proximal femoral fractures, and that PFNA is associated with reduced hospital stays and reduced time to weight-bearing ambulation and bone healing. Nonetheless, in certain cases in which PFNA is not suitable due to abnormal structure of the proximal femur or particularly unstable fractures, the LISS plate technique could be a useful alternative.

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FAU - Wang, Ying

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FAU - Ma, XinLong

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FAU - Zhang, ChengBao

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FAU - Han, Zhe

AU - Han Z

FAU - Sun, Lei

AU - Sun L

FAU - Lu, Bin

AU - Lu B

LA - eng

PT - Journal Article

PL - United States

TA - Medicine (Baltimore)

JT - Medicine

JID - 2985248R

SB - AIM

SB - IM

EDAT- 2016/04/09 06:00

MHDA- 2016/04/09 06:00

CRDT- 2016/04/09 06:00

AID - 10.1097/MD.00000000000003168 [doi]

AID - 00005792-201604050-00016 [pii]

PST - ppublish

SO - Medicine (Baltimore). 2016 Apr;95(14):e3168. doi: 10.1097/MD.00000000000003168.

PMID- 27057674

OWN - NLM

STAT- In-Data-Review

DA - 20160529

IS - 1096-1208 (Electronic)

IS - 0882-4010 (Linking)

VI - 96

DP - 2016 Jul

TI - Occurrence of virulence-associated genes in *Pasteurella multocida* isolates obtained from different hosts.

PG - 52-7

LID - 10.1016/j.micpath.2016.04.008 [doi]

LID - S0882-4010(15)30093-0 [pii]

AB - *Pasteurella multocida* infects a wide range of animals and the infection may spread to human through animal bites and scratches. *Pasteurella multocida* isolates, obtained from several clinically healthy and diseased animals (bovine, sheep, goat, poultry, dog and cat), were investigated for capsule biosynthesis (capA, B, D, E and F) and expression of 22 virulence-associated genes using Polymerase Chain Reaction (PCR). Multiplex PCR results revealed expression of capA, capD and capB genes in 81 (61.83%), 30 (22.90%) and 10 isolates (7.29%), respectively. However, neither of the isolates harbored capE or capF genes and ten isolates (7.29%) were negative for all cap genes. The expression of the capB gene was observed in small ruminant isolates. The occurrence of the ompA, ompH, oma87, sodA and sodC genes was noticed in all of the samples. More than 90% of the isolates harbored hgbA (96.18%), ptfA (95.41%), exbBD-tonB (93.12%), nanB (93.12%) and plbB genes (90.83%). The transferrin binding protein encoding gene *tbpA* was exclusively detected in the ruminant isolates. The limited number of isolates (25.95%) harbored dermonecrototoxin gene (*toxA*) and the highest occurrence was noted in the small ruminants, and the capsular type D isolates. This study highlights that the *toxA*, *tbpA*, and *pfnA* genes can be considered as important epidemiological markers for the characterization of *P. multocida* isolates.

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LA - eng

PT - Journal Article

DEP - 20160404

PL - England

TA - Microb Pathog

JT - Microbial pathogenesis

JID - 8606191

SB - IM

OTO - NOTNLM

OT - Capsular type

OT - PCR

OT - *Pasteurella multocida*

OT - Virulence factors

EDAT- 2016/04/09 06:00

MHDA- 2016/04/09 06:00

CRDT- 2016/04/09 06:00

PHST- 2015/08/31 [received]

PHST- 2016/04/01 [revised]

PHST- 2016/04/01 [accepted]

PHST- 2016/04/04 [aheadofprint]

AID - S0882-4010(15)30093-0 [pii]

AID - 10.1016/j.micpath.2016.04.008 [doi]

PST - ppublish

SO - Microb Pathog. 2016 Jul;96:52-7. doi: 10.1016/j.micpath.2016.04.008. Epub 2016 Apr 4.

PMID- 27091238

OWN - NLM

STAT- In-Data-Review

DA - 20160419

LR - 20160505

IS - 2041-1723 (Electronic)

IS - 2041-1723 (Linking)

VI - 7

DP - 2016

TI - Nanoparticle chemisorption printing technique for conductive silver patterning with submicron resolution.

PG - 11402

LID - 10.1038/ncomms11402 [doi]

AB - Silver nanocolloid, a dense suspension of ligand-encapsulated silver nanoparticles, is an important material for printing-based device production technologies. However, printed conductive patterns of sufficiently high quality and resolution for industrial products have not yet been achieved, as the use of conventional printing techniques is severely limiting. Here we report a printing technique to manufacture ultrafine conductive patterns utilizing the exclusive chemisorption phenomenon of weakly encapsulated silver nanoparticles on a photoactivated surface. The process includes masked irradiation of vacuum ultraviolet light on an amorphous perfluorinated polymer layer to photoactivate the surface with pendant carboxylate groups, and subsequent coating of alkylamine-encapsulated silver nanocolloids, which causes amine-carboxylate conversion to trigger the spontaneous formation of a self-fused solid silver layer. The technique can produce silver patterns of submicron fineness adhered strongly to substrates, thus enabling manufacture of flexible transparent conductive sheets. This printing technique could replace conventional vacuum- and photolithography-based device processing.

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 LA - eng
 PT - Journal Article
 DEP - 20160419
 PL - England
 TA - Nat Commun
 JT - Nature communications
 JID - 101528555
 SB - IM
 PMC - PMC4838887
 OID - NLM: PMC4838887
 EDAT- 2016/04/20 06:00
 MHDA- 2016/04/20 06:00
 CRDT- 2016/04/20 06:00
 PHST- 2015/12/20 [received]
 PHST- 2016/03/21 [accepted]
 AID - ncomms11402 [pii]
 AID - 10.1038/ncomms11402 [doi]
 PST - epublish
 SO - Nat Commun. 2016 Apr 19;7:11402. doi: 10.1038/ncomms11402.

 PMID- 26978428
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160330
 IS - 1477-0539 (Electronic)

IS - 1477-0520 (Linking)
 VI - 14
 IP - 14
 DP - 2016 Apr 14
 TI - Maltotriose-conjugation to a fluorinated chlorin derivative generating a PDT photosensitizer with improved water-solubility.
 PG - 3608-13
 LID - 10.1039/c6ob00276e [doi]
 AB - Photoactive molecules with the frameworks of chlorin and/or porphyrin possessing four perfluorinated aromatic rings were conjugated with maltotriose (Mal3) via the nucleophilic aromatic substitution reaction and subsequent deprotection reaction of the oligosaccharide moieties. The resulting oligosaccharide-conjugated molecules are ultimately improved as compared to the previously reported monosaccharide-counterparts in terms of water-solubility. In particular, a water-soluble chlorin derivative surrounded by four Mal3 molecules showed an excellent biocompatibility, strong photoabsorption in the longer wavelength regions, and a very high photocytotoxicity. Thus, the present synthetic route combined with the use of an oligosaccharide was shown to be a straightforward strategy to develop a third generation photosensitizer for photodynamic therapy (PDT).
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 FAU - Kikuchi, Jun-Ichi
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 FAU - Yano, Shigenobu
 AU - Yano S
 LA - eng
 PT - Journal Article
 DEP - 20160315
 PL - England
 TA - Org Biomol Chem

JT - Organic & biomolecular chemistry
 JID - 101154995
 SB - IM
 EDAT- 2016/03/16 06:00
 MHDA- 2016/03/16 06:00
 CRDT- 2016/03/16 06:00
 PHST- 2016/03/15 [aheadofprint]
 PHST- 2016/03/30 [epublish]
 AID - 10.1039/c6ob00276e [doi]
 PST - ppublish
 SO - Org Biomol Chem. 2016 Apr 14;14(14):3608-13. doi: 10.1039/c6ob00276e. Epub 2016 Mar 15.

PMID- 27054603
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160415
 IS - 1523-7052 (Electronic)
 IS - 1523-7052 (Linking)
 VI - 18
 IP - 8
 DP - 2016 Apr 15
 TI - 2-(Trifluoromethyl)indoles via Pd(0)-Catalyzed C(sp³)-H Functionalization of Trifluoroacetimidoyl Chlorides.
 PG - 1932-5
 LID - 10.1021/acs.orglett.6b00795 [doi]
 AB - Perfluoroalkylated indoles are valuable compounds in drug discovery. A Pd(0)-catalyzed C(sp³)-H functionalization enables access to 2-(trifluoromethyl)indoles from trifluoroacetimidoyl chlorides. These are stable compounds, easily obtained from anilines. The cyclization operates with catalyst loadings as low as 1 mol % and accommodates a variety of substituents.
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 LA - eng
 PT - Journal Article
 DEP - 20160407
 PL - United States
 TA - Org Lett
 JT - Organic letters
 JID - 100890393
 SB - IM
 EDAT- 2016/04/08 06:00
 MHDA- 2016/04/08 06:00
 CRDT- 2016/04/08 06:00
 PHST- 2016/04/07 [aheadofprint]
 AID - 10.1021/acs.orglett.6b00795 [doi]
 PST - ppublish
 SO - Org Lett. 2016 Apr 15;18(8):1932-5. doi: 10.1021/acs.orglett.6b00795. Epub 2016

Apr 7.

PMID- 27052937

OWN - NLM

STAT- In-Data-Review

DA - 20160509

IS - 1877-0568 (Electronic)

IS - 1877-0568 (Linking)

VI - 102

IP - 4

DP - 2016 Jun

TI - Comments on: Does the PFNA nail limit impaction in unstable intertrochanteric femoral fracture? A 115 case-control series, published by M. Helin, A. Pelissier, P. Boyer, T. Delory, C. Estellat, P. Massin in Orthopaedics & Traumatology: Surgery & Research 2015;101(1): 45-49.

PG - 533-4

LID - 10.1016/j.otsr.2016.03.009 [doi]

LID - S1877-0568(16)00094-3 [pii]

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LA - eng

PT - Letter

DEP - 20160401

PL - France

TA - Orthop Traumatol Surg Res

JT - Orthopaedics & traumatology, surgery & research : OTSR

JID - 101494830

SB - IM

EDAT- 2016/04/08 06:00

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PHST- 2016/01/21 [received]

PHST- 2016/03/09 [accepted]

PHST- 2016/04/01 [aheadofprint]

AID - S1877-0568(16)00094-3 [pii]

AID - 10.1016/j.otsr.2016.03.009 [doi]

PST - ppublish

SO - Orthop Traumatol Surg Res. 2016 Jun;102(4):533-4. doi: 10.1016/j.otsr.2016.03.009. Epub 2016 Apr 1.

PMID- 27074750

OWN - NLM

STAT- In-Data-Review

DA - 20160428

IS - 1463-9084 (Electronic)

IS - 1463-9076 (Linking)

VI - 18

IP - 17

DP - 2016 Apr 28

TI - Synthesis of double-wall nanoscrolls intercalated with polyfluorinated cationic surfactant into layered niobate and their magnetic alignment.

PG - 12108-14

LID - 10.1039/c6cp01547f [doi]

AB - The orientation of nanomaterials with an anisotropic nature such as nanoscrolls is very important for realizing their efficient and sophisticated functions in devices, including nanostructured electrodes in artificial photosynthetic cells. In this study, we successfully synthesized a nanoscroll by intercalation of a cationic polyfluorinated surfactant into the interlayer spaces of layered niobate and successfully controlled its orientation by applying an external magnetic field in water. The exfoliated niobate nanosheets were efficiently rolled-up to form nanoscrolls, which have a fine layered structure ($d_{020} = 3.64$ nm), by mixing with heptafluorobutanoylaminoethylhexadecyldimethylammonium bromide (C3F-S) in water, whereas the corresponding hydrocarbon analogue (C3H-S) did not form nanoscrolls. The synthetic yield for the purified and isolated nanoscrolls from the nanosheets was estimated to be 62% by weight. It was confirmed by atomic force microscopy (AFM) that most of the niobate nanosheets (98%) were converted to nanoscrolls. An external magnetic field was applied to the nanoscrolls to force them to align. After the magnetic treatment, the orientation of the nanoscrolls was investigated by small angle X-ray scattering (SAXS) and transmission electron microscopy (TEM). The non-uniform ring distribution of the SAXS patterns indicates that the nanoscrolls dispersed in water were aligned well on applying the magnetic field. The long axis of the nanoscroll was oriented in the direction of the applied field and long nanoscrolls were aligned more efficiently. When the intercalated C3F-S molecules were removed from the nanoscrolls by treating with an acid, the resultant nanoscrolls did not exhibit magnetic alignment, strongly suggesting that C3F-S plays an important role in the orientation control of the nanoscrolls by the magnetic field.

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LA - eng
PT - Journal Article
PL - England
TA - Phys Chem Chem Phys
JT - Physical chemistry chemical physics : PCCP
JID - 100888160
SB - IM
EDAT- 2016/04/15 06:00
MHDA- 2016/04/15 06:00
CRDT- 2016/04/15 06:00
AID - 10.1039/c6cp01547f [doi]
PST - ppublish
SO - Phys Chem Chem Phys. 2016 Apr 28;18(17):12108-14. doi: 10.1039/c6cp01547f.

PMID- 26800430
OWN - NLM
STAT- In-Data-Review
DA - 20160405
IS - 1615-9861 (Electronic)
IS - 1615-9853 (Linking)
VI - 16
IP - 7
DP - 2016 Apr
TI - Designed synthesis of fluorine-functionalized magnetic mesoporous microspheres
for specific enrichment of phosphopeptides with fluorine derivatization.
PG - 1051-8
LID - 10.1002/pmic.201500323 [doi]
AB - In this work, for the first time, perfluorinated magnetic mesoporous microspheres
were designed and synthesized for the highly specific enrichment of
fluorine-derivatized phosphopeptides through the unique fluorine-fluorine
interactions. The perfluorinated magnetic mesoporous microspheres were prepared
through a surfactant-mediated one-pot approach and successfully applied to the
selective extraction of fluorine-derivatized phosphopeptides from beta-casein
tryptic digest, protein mixtures, and human serum. Thanks to the hydrophilic
silanol groups exposed on the surface, perfluorinated groups modified in the pore

channels and the magnetic cores, the fluorine-functionalized magnetic microspheres exhibited excellent dispersibility, specificity toward fluorine-derivatized phosphopeptides while facilitated separation procedures. The novel composites achieved a high selectivity of 1:1000 toward nonphosphorylated peptides and proved to be practicable in the enrichment of endogenous phosphopeptides in the human serum sample.

CI - (c) 2016 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

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LA - eng

PT - Journal Article

DEP - 20160316

PL - Germany

TA - Proteomics

JT - Proteomics

JID - 101092707

SB - IM

OTO - NOTNLM

OT - Enrichment

OT - Fluorous proteomics

OT - Fluorous solid-phase extraction

OT - Functionalized magnetic mesoporous microspheres

OT - Mass spectrometry

OT - Technology

EDAT- 2016/01/23 06:00

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PHST- 2016/03/16 [aheadofprint]

AID - 10.1002/pmic.201500323 [doi]

PST - ppublish

SO - Proteomics. 2016 Apr;16(7):1051-8. doi: 10.1002/pmic.201500323. Epub 2016 Mar 16.

PMID- 27032815

OWN - NLM

STAT- In-Data-Review

DA - 20160401

LR - 20160406

IS - 2045-2322 (Electronic)

IS - 2045-2322 (Linking)

VI - 6

DP - 2016

TI - Effects of Perfluorooctanoic Acid on Metabolic Profiles in Brain and Liver of Mouse Revealed by a High-throughput Targeted Metabolomics Approach.

PG - 23963

LID - 10.1038/srep23963 [doi]

AB - Perfluorooctanoic acid (PFOA), a perfluoroalkyl acid, can result in hepatotoxicity and neurobehavioral effects in animals. The metabolome, which serves as a connection among transcriptome, proteome and toxic effects, provides pathway-based insights into effects of PFOA. Since understanding of changes in

the metabolic profile during hepatotoxicity and neurotoxicity were still incomplete, a high-throughput targeted metabolomics approach (278 metabolites) was used to investigate effects of exposure to PFOA for 28 d on brain and liver of male Balb/c mice. Results of multivariate statistical analysis indicated that PFOA caused alterations in metabolic pathways in exposed individuals. Pathway analysis suggested that PFOA affected metabolism of amino acids, lipids, carbohydrates and energetics. Ten and 18 metabolites were identified as potential unique biomarkers of exposure to PFOA in brain and liver, respectively. In brain, PFOA affected concentrations of neurotransmitters, including serotonin, dopamine, norepinephrine, and glutamate in brain, which provides novel insights into mechanisms of PFOA-induced neurobehavioral effects. In liver, profiles of lipids revealed involvement of beta-oxidation and biosynthesis of saturated and unsaturated fatty acids in PFOA-induced hepatotoxicity, while alterations in metabolism of arachidonic acid suggesting potential of PFOA to cause inflammation response in liver. These results provide insight into the mechanism and biomarkers for PFOA-induced effects.

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 LA - eng
 PT - Journal Article
 DEP - 20160401
 PL - England
 TA - Sci Rep
 JT - Scientific reports
 JID - 101563288
 SB - IM
 PMC - PMC4817033
 OID - NLM: PMC4817033
 EDAT- 2016/04/02 06:00
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 PHST- 2015/11/24 [received]
 PHST- 2016/03/15 [accepted]
 AID - srep23963 [pii]
 AID - 10.1038/srep23963 [doi]
 PST - epubish
 SO - Sci Rep. 2016 Apr 1;6:23963. doi: 10.1038/srep23963.

PMID- 27060656
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160426
 IS - 1879-1026 (Electronic)
 IS - 0048-9697 (Linking)
 VI - 559
 DP - 2016 Jul 15
 TI - Associations of serum perfluoroalkyl acid levels with T-helper cell-specific cytokines in children: By gender and asthma status.

PG - 166-73

LID - 10.1016/j.scitotenv.2016.03.187 [doi]

LID - S0048-9697(16)30611-8 [pii]

AB - Perfluoroalkyl acids (PFAAs) are a group of common chemicals that ubiquitously exist in wildlife and humans. Experimental data suggest that they may alter T-lymphocyte functioning in situ by preferentially enhancing the development of T-helper 2 (TH2)- and inhibiting TH1-lymphocyte development and might increase allergic inflammation, but few human studies have been conducted. To evaluate the association between serum PFAAs concentrations and T-lymphocyte-related immunological markers of asthma in children, and further to assess whether gender modified this association, 231 asthmatic children and 225 non-asthmatic control children from Northern Taiwan were recruited into the Genetic and Biomarker study for Childhood Asthma. Serum concentrations of ten PFAAs and levels of TH1 [interferon (IFN)-gamma, interleukin (IL)-2] and TH2 (IL-4 and IL-5) cytokines were measured. The results showed that asthmatics had significantly higher serum PFAAs concentrations compared with the healthy controls. When stratified by gender, a greater number of significant associations between PFAAs and asthma outcomes were found in males than in females. Among males, adjusted odds ratios for asthma among those with the highest versus lowest quartile of PFAAs exposure ranged from 2.59 (95% CI: 1.14, 5.87) for the perfluorobutanesulfonate (PFBS) to 4.38 (95% CI: 2.02, 9.50) for perfluorooctanesulfonate (PFOS); and serum PFAAs were associated positively with TH2 cytokines and inversely with TH1 cytokines among male asthmatics. Among females, no significant associations between PFAAs

and TH2 cytokines could be detected. In conclusion, increased serum PFAAs levels may promote TH cell dysregulation and alter the availability of key TH1 and TH2 cytokines, ultimately contributing to the development of asthma that may differentially impact males to a greater degree than females. These results have potential relevance in asthma prevention.

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LA - eng

PT - Journal Article

DEP - 20160406

PL - Netherlands
 TA - Sci Total Environ
 JT - The Science of the total environment
 JID - 0330500
 SB - IM
 OTO - NOTNLM
 OT - Asthma
 OT - Children
 OT - Perfluoroalkyl acids (PFAAs)
 OT - T(H)2 cytokines
 OT - T-helper 1 (T(H)1) cytokines
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 PHST- 2016/04/06 [aheadofprint]
 AID - S0048-9697(16)30611-8 [pii]
 AID - 10.1016/j.scitotenv.2016.03.187 [doi]
 PST - ppublish
 SO - Sci Total Environ. 2016 Jul 15;559:166-73. doi: 10.1016/j.scitotenv.2016.03.187.
 Epub 2016 Apr 6.

PMID- 27100000

OWN - NLM

STAT- In-Data-Review

DA - 20160604

IS - 1879-1026 (Electronic)

IS - 0048-9697 (Linking)

VI - 562

DP - 2016 Aug 15

TI - Removal of aqueous perfluorooctanoic acid (PFOA) using starch-stabilized magnetite nanoparticles.

PG - 191-200

LID - 10.1016/j.scitotenv.2016.03.100 [doi]

LID - S0048-9697(16)30524-1 [pii]

AB - Fully stabilized magnetite (Fe₃O₄) nanoparticles were prepared with a water-soluble starch as a stabilizer and tested for removal of aqueous perfluorooctanoic acid (PFOA). The presence of starch at $\geq 0.2\text{wt}\%$ can fully stabilize 0.1g/L as Fe of the Fe₃O₄ nanoparticles. The particle stabilization technique resulted in 2.4 times higher PFOA uptake. Fourier transform infrared spectra suggested that the main PFOA removal mechanism was inner-sphere complexation. Batch kinetic experiments revealed that the starch-stabilized nanoparticles facilitated a rapid PFOA uptake with a sorption equilibrium time of 30min, and the sorption process followed a pseudo-second-order kinetic model. The Langmuir model was able to well interpret the adsorption isotherm, with a maximum adsorption capacity of 62.5mg/g . Increasing pH from 4.7 to 9.6 led to a sharp increase (by 2.6 times) in PFOA uptake. The presence of 12mg/L humic acid inhibited PFOA uptake by 96%, while effect of ionic strength ($\text{CaCl}_2=0\text{--}2\text{mmol/L}$) was negligible. The nanoparticles significantly reduced the biological toxicity of PFOA. The results demonstrated promise of starch-stabilized Fe₃O₄ nanoparticles as a "green" adsorbent for effective removal of PFOA in soil and groundwater.

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 LA - eng
 PT - Journal Article
 DEP - 20160418
 PL - Netherlands
 TA - Sci Total Environ
 JT - The Science of the total environment
 JID - 0330500
 SB - IM
 OTO - NOTNLM
 OT - Adsorption
 OT - Emerging contaminants
 OT - Groundwater remediation
 OT - Magnetite nanoparticles
 OT - Perfluorooctanoic acid
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 PHST- 2016/03/14 [revised]
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 PHST- 2016/04/18 [aheadofprint]
 AID - S0048-9697(16)30524-1 [pii]
 AID - 10.1016/j.scitotenv.2016.03.100 [doi]
 PST - ppublish
 SO - Sci Total Environ. 2016 Aug 15;562:191-200. doi: 10.1016/j.scitotenv.2016.03.100. Epub 2016 Apr 18.
 PMID- 27139301
 OWN - NLM
 STAT- Publisher
 DA - 20160503
 LR - 20160504

IS - 1879-1026 (Electronic)

IS - 0048-9697 (Linking)

VI - 563-564

DP - 2016 Apr 29

TI - Blue sharks (*Prionace glauca*) as bioindicators of pollution and health in the Atlantic Ocean: Contamination levels and biochemical stress responses.

PG - 282-292

LID - S0048-9697(16)30765-3 [pii]

LID - 10.1016/j.scitotenv.2016.04.085 [doi]

AB - Marine ecosystems are constantly being threatened by contaminants produced by human activities. There is an urge to better understand their impacts on marine organisms and develop reliable tools for biomonitoring studies, while also assessing their potential impacts on human health. Given their position on top of food webs, sharks are particularly susceptible to bioaccumulation, making them potential sentinel species of marine contamination. The main objective of this study was to find suitable biomarkers for future marine pollution biomonitoring studies by correlating biochemical responses with tissue contaminant body burden in blue sharks (*Prionace glauca*), a species heavily caught and consumed by humans, while also addressing their general health. The chemical contaminants analysed comprised different persistent organic pollutants (POPs) families from polychlorinated compounds to brominated flame retardants (BFRs) and perfluorinated compounds (PFCs) and different trace and heavy metals. Concentrations of some contaminants in sharks' tissues were found to be above the legally allowed limits for human consumption. A canonical correspondence analysis (CCA) was performed and some strong associations were found between biochemical responses and contaminants' accumulation levels. DNA damage and lipid peroxidation levels, as well as the inhibition of the antioxidant enzyme glutathione peroxidase, were the main effects and consequences of contamination. The impact of contamination on these vital macromolecules underlines the suboptimal conditions of the sampled *P. glauca*, which can ultimately lead to the degradation of core ecological aspects, such as swimming, feeding, and reproduction. It can be concluded that *P. glauca* demonstrates great potential to be used as environmental sentinel and suitable biomarker candidates were identified in this work. Moreover, this study also highlights the risks that the consumption of blue shark derived products can pose to human health, which is of upmost interest as the sampled organisms were still juveniles and already presented values above regulatory limits.

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 LA - ENG
 PT - JOURNAL ARTICLE
 DEP - 20160429
 TA - Sci Total Environ
 JT - The Science of the total environment
 JID - 0330500
 OTO - NOTNLM
 OT - Biomarkers
 OT - Human health risk
 OT - Marine pollution
 OT - Oxidative stress
 OT - Sharks
 OT - Xenobiotics
 EDAT- 2016/05/04 06:00
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 AID - S0048-9697(16)30765-3 [pii]
 AID - 10.1016/j.scitotenv.2016.04.085 [doi]
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 PMID- 26849337
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160229
 LR - 20160520
 IS - 1879-1026 (Electronic)
 IS - 0048-9697 (Linking)
 VI - 550
 DP - 2016 Apr 15
 TI - Modeling the pH-mediated extraction of ionizable organic contaminants to improve the quality of municipal sewage sludge destined for land application.
 PG - 736-41
 LID - 10.1016/j.scitotenv.2016.01.119 [doi]
 LID - S0048-9697(16)30119-X [pii]
 AB - A model was developed to assess the impact of adding acids and bases to processed

municipal sewage sludge (MSS) to mobilize contaminants, facilitating their removal from sludge by flushing prior to land application. Among 312 organic contaminants documented to occur in U.S. MSS, 71 or 23% were identified as ionizable organic contaminants (IOCs), contributing a disproportionately large fraction of 82% of the total mass of sludge-borne contaminants. Detected IOCs included 57 pharmaceuticals and personal care products, 12 perfluorinated compounds, one surfactant and one pesticide. Annually, about 2000t of IOCs were estimated to be released to U.S. soils via land-application of MSS. A partitioning model developed to assess the impact of pH on hydrophobic sorption revealed that between 36 and 85% of the mass of individual classes of IOCs potentially could be desorbed from MSS via pH adjustment and flushing. Thus, modeling results suggest that a sequential pH treatment [acidic (~pH2) followed by basic (~pH12) treatment] has the potential to reduce the burden of harmful IOCs in MSS applied on U.S. land by up to 40+/-16t annually. This approach may serve as a cost-effective treatment process that can be implemented easily in existing sludge treatment infrastructure in the U.S. and worldwide, serving to significantly improve the quality of MSS destined for land application.

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LA - eng

GR - R01 ES015445/ES/NIEHS NIH HHS/United States

GR - R01 ES020889/ES/NIEHS NIH HHS/United States

PT - Journal Article

DEP - 20160202

PL - Netherlands

TA - Sci Total Environ

JT - The Science of the total environment

JID - 0330500

SB - IM

PMC - PMC4769932

MID - NIHMS757075

OID - NLM: NIHMS757075 [Available on 04/15/17]

OID - NLM: PMC4769932 [Available on 04/15/17]

OTO - NOTNLM

OT - Biosolids

OT - Ionizable compounds

OT - Partitioning model

OT - Sewage sludge

OT - Sludge treatment

EDAT- 2016/02/06 06:00

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AID - S0048-9697(16)30119-X [pii]
 AID - 10.1016/j.scitotenv.2016.01.119 [doi]
 PST - ppublish
 SO - Sci Total Environ. 2016 Apr 15;550:736-41. doi: 10.1016/j.scitotenv.2016.01.119.
 Epub 2016 Feb 2.

PMID- 26803730

OWN - NLM

STAT- In-Data-Review

DA - 20160218

IS - 1879-1026 (Electronic)

IS - 0048-9697 (Linking)

VI - 548-549

DP - 2016 Apr 1

TI - Does perfluorooctane sulfonate (PFOS) act as chemosensitizer in zebrafish embryos?

PG - 317-24

LID - 10.1016/j.scitotenv.2015.12.089 [doi]

LID - S0048-9697(15)31244-4 [pii]

AB - Earlier studies have shown that perfluorooctane sulfonate (PFOS) increases the toxicity of other chemicals by enhancing their uptake by cells and tissues. The present study aimed at testing whether the underlying mechanism of enhanced uptake of chemicals by zebrafish (*Danio rerio*) embryos in the presence of PFOS is by interference of this compound with the cellular efflux transporter Abcb4. Modifications of uptake/clearance and toxicity of two Abcb4 substrates, the fluorescent dye rhodamine B (RhB) and vinblastine, by PFOS were evaluated using 24 and 48h post-fertilization (hpf) embryos. Upon 90min exposure of 24hpf embryos to 1μM RhB and different PFOS concentrations (3-300μM) accumulation of RhB in zebrafish was increased by up to 11.9-fold compared to controls, whereas RhB increases in verapamil treatments were 1.7-fold. Co-administration of PFOS and vinblastine in exposures from 0 to 48hpf resulted in higher vinblastine-caused mortalities in zebrafish embryos indicating increased uptake of this compound. Interference of PFOS with zebrafish Abcb4 activity was further studied using recombinant protein obtained with the baculovirus expression system. PFOS lead to a concentration-dependent decrease of the verapamil-stimulated Abcb4 ATPase activity; at higher PFOS concentrations (250, 500μM), also the basal ATPase activity was lowered indicating PFOS to be an Abcb4 inhibitor. In exposures of 48hpf embryos to a very high RhB concentration (200μM), accumulation of RhB in embryo tissue and adsorption to the chorion were increased in the presence of 50 or 100μM PFOS. In conclusion, the results indicate that PFOS acts as inhibitor of zebrafish Abcb4; however, the exceptionally large PFOS-caused effect amplitude of RhB accumulation in the 1μM RhB experiments and the clear PFOS effects in the experiments with 200μM RhB suggest that an additional mechanism appears to be responsible for the potential of PFOS to enhance uptake of Abcb4 substrates.

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 LA - eng
 PT - Journal Article
 DEP - 20160121
 PL - Netherlands
 TA - Sci Total Environ
 JT - The Science of the total environment
 JID - 0330500
 SB - IM
 OTO - NOTNLM
 OT - Abcb4
 OT - Chemosensitization
 OT - Environment-tissue barrier
 OT - Multixenobiotic resistance (MXR)
 OT - P-glycoprotein
 OT - Perfluorooctane sulfonate
 OT - Zebrafish embryo
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AID - 10.1016/j.scitotenv.2015.12.089 [doi]

PST - ppublish

SO - Sci Total Environ. 2016 Apr 1;548-549:317-24. doi:
10.1016/j.scitotenv.2015.12.089. Epub 2016 Jan 21.

PMID- 26802356

OWN - NLM

STAT- In-Data-Review

DA - 20160218

IS - 1879-1026 (Electronic)

IS - 0048-9697 (Linking)

VI - 548-549

DP - 2016 Apr 1

TI - Assessing the risk associated with the presence of emerging organic contaminants
in sludge-amended soil: A country-level analysis.

PG - 280-8

LID - 10.1016/j.scitotenv.2016.01.043 [doi]

LID - S0048-9697(16)30044-4 [pii]

AB - Greece was used as case study and the environmental risk associated with the existence of 99 emerging organic contaminants (EOCs) in sludge-amended soil was estimated using risk quotient (RQ) approach. Data on the concentration levels of EOCs in sewage sludge was collected after literature review. Chemical analyses were also conducted for 50 pharmaceuticals and illicit drugs in sludge samples from Athens Sewage Treatment Plant. Risk assessment was based on both terrestrial and aquatic acute toxicity data, using both the maximum and the average measured concentrations of the target compounds. EC50/LC50 values were collected through literature review or using the ECOSAR program in cases that experimental values were not available. Triclosan seems to pose an environmental risk on the soil environment, as its RQ values exceeded 1, both in terrestrial and aquatic toxicity data based risk assessment. Calculations based on aquatic toxicity data showed that another eleven compounds had RQs higher than 1, most of them belonging to the classes of synthetic phenolic compounds and siloxanes. Tetradecamethylhexasiloxane presented the highest RQ, while high RQs were also calculated for decamethylcyclopentasiloxane and caffeine. No environmental risk for the terrestrial environment is expected due to the individual action of illicit drugs, perfluorinated compounds and benzotriazoles. The sludge source and the day of sampling affected the estimated threat due to nonylphenolic compounds; however these factors did not affect the estimated risk for siloxanes, caffeine and ofloxacin. Calculation of RQ values for the mixture of EOCs, using either the maximum or the average concentrations, far exceeded 1 (253 and 209, respectively), indicating a presumable threat for the terrestrial environment due to the baseline toxicity of these compounds. Countries that reuse sludge for agricultural purposes should include specific EOCs in national monitoring campaigns and study more thoroughly on their effects to the terrestrial environment.

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 LA - eng
 PT - Journal Article
 DEP - 20160121
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 TA - Sci Total Environ
 JT - The Science of the total environment
 JID - 0330500
 SB - IM
 OTO - NOTNLM
 OT - Biosolids
 OT - Micropollutants
 OT - Partition coefficient
 OT - Risk quotient
 OT - Sludge-amended soil
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 PMID- 26824483
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160229
 IS - 1873-3557 (Electronic)
 IS - 1386-1425 (Linking)
 VI - 159
 DP - 2016 Apr 15
 TI - A simple and highly sensitive assay of perfluorooctanoic acid based on resonance light scattering technique.
 PG - 7-12
 LID - 10.1016/j.saa.2016.01.010 [doi]
 LID - S1386-1425(16)30010-5 [pii]
 AB - A simple, highly sensitive resonance light scattering (RLS) method for the detection of perfluorooctanoic acid (PFOA) has been developed based on the interaction with crystal violet (CV). It was found that PFOA can form complexes with CV in acid medium resulting in remarkable enhancement of the RLS intensity of the system. And the enhanced RLS intensities are in proportion to the concentration of PFOA in the range of 0.1-25.0 μmol/L ($R^2=0.9998$), with a detection limit of 11.0 nmol/L ($S/N=3$). In this work, the optimum reaction conditions and the interferences of foreign substances were investigated. The reaction mechanism between CV and PFOA was also studied by the absorption spectrum and scanning electron microscope (SEM). This method is successfully applied to the determination of PFOA in tap water and Jialing river water samples

with RSD \leq 4.04%.

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LA - eng

PT - Journal Article

DEP - 20160109

PL - England

TA - Spectrochim Acta A Mol Biomol Spectrosc

JT - Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy

JID - 9602533

SB - IM

OTO - NOTNLM

OT - Crystal violet (CV)

OT - Perfluorooctanoic acid (PFOA)

OT - Resonance light scattering (RLS)

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AID - S1386-1425(16)30010-5 [pii]

AID - 10.1016/j.saa.2016.01.010 [doi]

PST - ppublish

SO - Spectrochim Acta A Mol Biomol Spectrosc. 2016 Apr 15;159:7-12. doi: 10.1016/j.saa.2016.01.010. Epub 2016 Jan 9.

PMID- 27186505

OWN - NLM

STAT- PubMed-not-MEDLINE

DA - 20160517
 DCOM- 20160517
 LR - 20160519
 IS - 2193-1801 (Electronic)
 VI - 5
 DP - 2016
 TI - Influence of salinity and temperature on uptake of perfluorinated carboxylic acids (PFCAs) by hydroponically grown wheat (*Triticum aestivum* L.).
 PG - 541
 LID - 10.1186/s40064-016-2016-9 [doi]
 AB - Perfluoroalkyl substances (PFASs) have recently attracted increasing concerns due to their ubiquitous existence, adverse effects and persistence in environment. This study employed four perfluorinated carboxylic acids (PFCAs) to examine effects of salinity and temperature on the PFAS uptake in wheat, one of the major crops in the North China Plain. Wheat plants were grown in the spiked-PFCA hydroponic culture system at different salinities and temperatures. As expected, salinity and temperature significantly impacted the root uptake and translocation of wheat to four PFCAs, and the concentrations for each of PFCAs in wheat root and shoot increased with increasing salinity and temperature, respectively. PFCA concentrations at high salinity or high temperature were up to thrice those found at low salinity or low temperature. Except for perfluorobutanoic acid, the amount of PFCAs in root was always higher than that in shoot at the ranges of salinity and temperature tested. Additionally salinity and temperature were also capable of influencing the transfer factors (TFs) of four PFCAs, and significant increase was observed in the TFs in response to the increases in salinity and temperature.
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 LA - eng
 PT - Journal Article
 DEP - 20160427
 PL - Switzerland
 TA - Springerplus
 JT - SpringerPlus
 JID - 101597967
 PMC - PMC4846607

OID - NLM: PMC4846607
 OTO - NOTNLM
 OT - Perfluoroalkyl substances (PFASs)
 OT - Salinity
 OT - Temperature
 OT - Transfer factor (TF)
 OT - Wheat
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 AID - 10.1186/s40064-016-2016-9 [doi]
 AID - 2016 [pii]
 PST - epublish
 SO - Springerplus. 2016 Apr 27;5:541. doi: 10.1186/s40064-016-2016-9. eCollection 2016.

PMID- 27260427
 OWN - NLM
 STAT- In-Data-Review
 DA - 20160604
 IS - 1873-3573 (Electronic)
 IS - 0039-9140 (Linking)
 VI - 156-157
 DP - 2016 Aug 15
 TI - Fluorous-assisted metal chelate affinity extraction technique for analysis of protein kinase activity.
 PG - 1-5
 LID - 10.1016/j.talanta.2016.04.058 [doi]
 LID - S0039-9140(16)30303-4 [pii]
 AB - We have developed a fluorous affinity-based extraction method for measurement of protein kinase activity. In this method, a fluorescent peptide substrate was phosphorylated by a protein kinase, and the obtained phosphopeptide was selectively captured with Fe(III)-immobilized perfluoroalkyliminodiacetic acid reagent via a metal chelate affinity technique. Next, the captured phosphopeptide was selectively extracted into a fluorous solvent mixture, tetradecafluorohexane and 1H,1H,2H,2H-tridecafluoro-1-n-octanol (3:1, v/v), using the specificity of fluorous affinity (fluorophilicity). In contrast, the remained substrate peptide in the aqueous (non-fluorous) phase was easily measured fluorimetrically. Finally, the enzyme activity could be assayed by measuring the decrease in fluorescence. The feasibility of this method was demonstrated by applying the method for measurement of the activity of cAMP-dependent protein kinase (PKA) using its substrate peptide (kemptide) pre-labeled with carboxytetramethylrhodamine (TAMRA).
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 LA - eng
 PT - Journal Article
 DEP - 20160427
 PL - Netherlands
 TA - Talanta
 JT - Talanta
 JID - 2984816R
 SB - IM
 OTO - NOTNLM
 OT - Fluorometry measurement
 OT - Fluorous
 OT - Metal chelate affinity
 OT - Phosphopeptide
 OT - Protein kinase
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 AID - 10.1016/j.talanta.2016.04.058 [doi]
 PST - ppublish
 SO - Talanta. 2016 Aug 15;156-157:1-5. doi: 10.1016/j.talanta.2016.04.058. Epub 2016
 Apr 27.
 PMID- 26838396
 OWN - NLM
 STAT- In-Process
 DA - 20160203
 IS - 1873-3573 (Electronic)
 IS - 0039-9140 (Linking)
 VI - 150
 DP - 2016 Apr 1
 TI - Validated method for the determination of perfluorinated compounds in placental
 tissue samples based on a simple extraction procedure followed by ultra-high
 performance liquid chromatography-tandem mass spectrometry analysis.
 PG - 169-76
 LID - 10.1016/j.talanta.2015.12.020 [doi]

LID - S0039-9140(15)30542-7 [pii]

AB - Xenobiotic exposure during pregnancy is inevitable. Determination of perfluorinated compounds (PFCs), chemicals described as environmental contaminants by Public Health Authorities due to their persistence, bioaccumulation and toxicity, is a challenge. In the present work, a method based on a simplified sample treatment involving freeze-drying, solvent extraction and dispersive clean-up of the extracts using C18 sorbents followed by an ultra-high performance liquid chromatography-tandem mass spectrometry (UHPLC-MS/MS) analysis was developed and validated for the determination of five perfluorinated carboxylic acids (C4-C8) and perfluorooctane sulfonate (PFOS) in placental tissue samples. The most influential parameters affecting the extraction method and clean-up were optimized using Design of Experiments (DOE). The method was validated using matrix-matched calibration. Found limits of detection (LODs) ranged from 0.03 to 2 ng g⁻¹ and limits of quantification (LOQs) from 0.08 to 6 ng g⁻¹, while inter- and intra-day variability was under 14% in all cases. Recovery rates for spiked samples ranged from 94% to 113%. The method was satisfactorily applied for the determination of compounds in human placental tissue samples collected at delivery from 25 randomly selected women.

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LA - eng

PT - Journal Article

PT - Research Support, Non-U.S. Gov't

DEP - 20151211

PL - Netherlands

TA - Talanta

JT - Talanta

JID - 2984816R

SB - IM

OTO - NOTNLM

OT - Dispersive solid phase extraction

OT - Perfluorinated compounds

OT - Placental tissue

OT - UHPLC-MS/MS

EDAT- 2016/02/04 06:00

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PHST- 2015/10/22 [received]

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AID - 10.1016/j.talanta.2015.12.020 [doi]

PST - ppublish

SO - Talanta. 2016 Apr 1;150:169-76. doi: 10.1016/j.talanta.2015.12.020. Epub 2015 Dec 11.

PMID- 27068293

OWN - NLM

STAT- In-Data-Review

DA - 20160506

IS - 1096-0333 (Electronic)

IS - 0041-008X (Linking)

VI - 301

DP - 2016 Jun 15

TI - Effects of developmental exposure to perfluorooctanoic acid (PFOA) on long bone morphology and bone cell differentiation.

PG - 14-21

LID - 10.1016/j.taap.2016.04.002 [doi]

LID - S0041-008X(16)30071-0 [pii]

AB - Perfluorooctanoic acid (PFOA) is a ubiquitous and persistent environmental chemical, which has been used extensively due to its stability and surface tension-lowering properties. Toxicological effects include induction of neonatal mortality and reproductive toxicity. In this study, pregnant C57BL/6 mice were exposed orally to 0.3mg PFOA/kg/day throughout pregnancy, and female offspring were studied at the age of 13 or 17months. Morphometrical and biomechanical properties of femurs and tibias were analyzed with micro-computed tomography and 3-point bending, and bone PFOA concentrations were determined by mass spectrometry. The effects of PFOA on bone cell differentiation were studied in osteoclasts from C57BL/6 mice and in the MC3T3 pre-osteoblast cell line. PFOA exposed mice showed increased femoral periosteal area as well as decreased mineral density of tibias. Biomechanical properties of these bones were not affected. Bone PFOA concentrations were clearly elevated even at the age of 17months. In osteoblasts, low concentrations of PFOA increased osteocalcin (OCN) expression and calcium secretion, but at PFOA concentrations of 100muM and above osteocalcin (OCN) expression and calcium secretion were decreased. The number of osteoclasts was increased at all PFOA concentrations tested and resorption activity dose-dependently increased from 0.1-1.0muM, but decreased at higher concentrations. The results show that PFOA accumulates in bone and is present in bones until the old age. PFOA has the potential to influence bone turnover over a long period of time. Therefore bone is a target tissue for PFOA, and altered bone geometry and mineral density seem to persist throughout the life of the animal.

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LA - eng

PT - Journal Article

DEP - 20160409

PL - United States

TA - Toxicol Appl Pharmacol

JT - Toxicology and applied pharmacology

JID - 0416575

SB - IM

OTO - NOTNLM

OT - Bone toxicity

OT - Osteogenesis

OT - PFOA

OT - Resorption

OT - Stem cells

EDAT- 2016/04/14 06:00

MHDA- 2016/04/14 06:00

CRDT- 2016/04/13 06:00

PHST- 2015/10/18 [received]

PHST- 2016/03/31 [revised]

PHST- 2016/04/05 [accepted]

PHST- 2016/04/09 [aheadofprint]

AID - S0041-008X(16)30071-0 [pii]

AID - 10.1016/j.taap.2016.04.002 [doi]

PST - ppublish

SO - Toxicol Appl Pharmacol. 2016 Jun 15;301:14-21. doi: 10.1016/j.taap.2016.04.002.

Epub 2016 Apr 9.

PMID- 26854608

OWN - NLM

STAT- In-Data-Review

DA - 20160227

IS - 1879-2448 (Electronic)

IS - 0043-1354 (Linking)

VI - 92

DP - 2016 Apr 1

TI - The influence of a non-aqueous phase liquid (NAPL) and chemical oxidant application on perfluoroalkyl acid (PFAA) fate and transport.

PG - 199-207

LID - 10.1016/j.watres.2016.01.025 [doi]

LID - S0043-1354(16)30025-2 [pii]

AB - One dimensional column experiments were conducted using saturated porous media containing residual trichloroethylene (TCE) to understand the effects of non-aqueous phase liquids (NAPLs) and chemical oxidation on perfluoroalkyl acid (PFAA) fate and transport. Observed retardation factors and data from supporting batch studies suggested that TCE provides additional sorption capacity that can increase PFAA retardation (i.e., decreased mobility), though the mechanisms remain unclear. Treatment with persulfate activated with FeCl₂ and citric acid, catalyzed hydrogen peroxide (CHP), or permanganate did not result in oxidative transformations of PFAAs. However, impacts on PFAA sorption were apparent, and enhanced sorption was substantial in the persulfate-treated columns. In contrast, PFAA transport was accelerated in permanganate- and CHP-treated columns. Ultimately, PFAA transport in NAPL contaminated groundwater is likely influenced by porous media properties, NAPL characteristics, and water quality properties, each of which can change due to chemical oxidant treatment. For contaminated sites for which ISCO is a viable treatment option, changes to PFAA transport and the implications thereof should be included as a component of the remediation evaluation and selection process.

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LA - eng

PT - Journal Article

DEP - 20160114

PL - England

TA - Water Res

JT - Water research

JID - 0105072
SB - IM
OTO - NOTNLM
OT - AFFF
OT - PFASs
OT - Porous media
OT - Remediation
OT - Sorption
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PHST- 2015/09/10 [received]
PHST- 2015/12/09 [revised]
PHST- 2016/01/12 [accepted]
PHST- 2016/01/14 [aheadofprint]
AID - S0043-1354(16)30025-2 [pii]
AID - 10.1016/j.watres.2016.01.025 [doi]
PST - ppublish
SO - Water Res. 2016 Apr 1;92:199-207. doi: 10.1016/j.watres.2016.01.025. Epub 2016 Jan 14.

To: Lynch, David[Lynch.David@epa.gov]; Scarano, Louis[Scarano.Louis@epa.gov]; Gallagher, Jeffrey[Gallagher.Jeffrey@epa.gov]; Johnson, Aaron[Johnson.AaronK@epa.gov]; Benson, Amy[Benson.Amy@epa.gov]; Garvey, Mark[Garvey.Mark@epa.gov]; Lindstrom, Andrew[Lindstrom.Andrew@epa.gov]; Strynar, Mark[Strynar.Mark@epa.gov]; Acheson, Carolyn[Acheson.Carolyn@epa.gov]; Washington, John[Washington.John@epa.gov]; Donohue, Joyce[Donohue.Joyce@epa.gov]
From: Libelo, Laurence
Sent: Thur 6/2/2016 4:10:24 PM
Subject: Recent presentations on perfluoro Guidance and Regulations
[Selcoe Platform PFAS Survey.pdf](#)
[DiGuseppi Poster PFAS Regulation and Guidance.pdf](#)

Here are two very interesting presentations for the recent Battelle Remediation conference on Perfluoro regs and approaches.

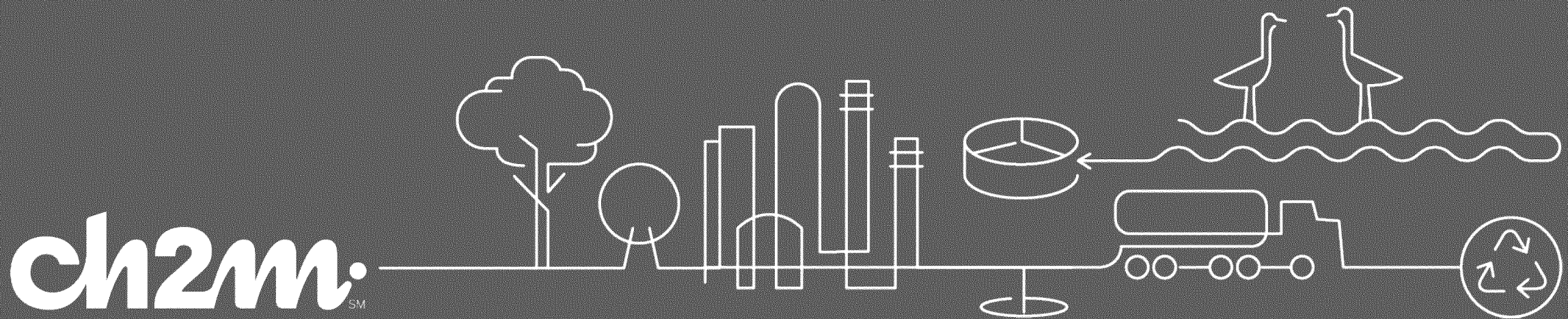
They list and compare EPA, State and international regs. Please share.

Laurence

A Survey of Recent Developments in Toxicology and Risk Assessment for Per- and Polyfluoroalkyl Substances

Barrie Selcoe

William DiGuseppi



Delivering Sustainable Solutions to Complex Local Challenges, Worldwide
Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds – Battelle 2016

You may be wondering some things about PFAS and HHRA...

- Why are we hearing so much about PFAS now?
- Who could be exposed?
- Where could we be exposed?
- What human health screening levels, toxicity values, and fish bioaccumulation factors are available?
- When did we get this information?
- How could we do HHRA?



Image courtesy of renjith krishnan at FreeDigitalPhotos.net

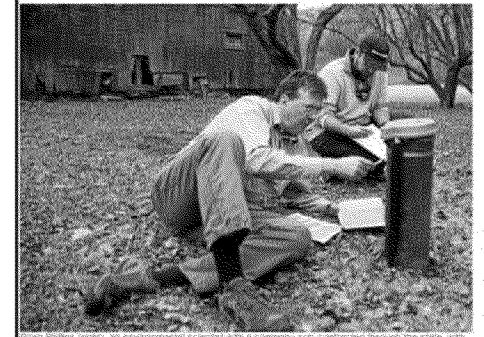
We're hearing about PFAS in the news daily

- Per- and polyfluoroalkyl substances detected globally
- Present in wildlife, people, and food
- Most common foreign compound found in human blood
- Present in almost everyone's blood but unregulated nationally
- Can persist in the environment for a long time
- Toxicity studies are ongoing & effects evolving

Behind the Headlines: Water contamination, PFOA testing

By Edward Damon >> edamon@berkeleystreagle.com @EE_EDamon on Twitter

POSTED: 04/05/2016 05:13:00 PM EDT | UPDATED: ABOUT A MONTH AGO



Small photo shows the environmental cleanup work at a company site. The site is located in the town of Fitchard, Vermont. Hazardous sites manager for the Vermont Agency of Natural Resources, examines a well at a Fitchard site. The site is located in the town of Fitchard, Vermont. (Photos by Holly Pelszynski - Berkeleystreagle.com)

Hundreds of people in the tri-state region have been given the same warning: Don't drink the water.



Alma and Bernie Haaijer both have high levels of toxic PFOS in their blood.

Posted 5 May 2016, 1:40pm

AUSTRALIA VOTES

TOP STORIES
Everest death sparks concerns over safety of trekking companies
People don't need speeds Labo: promised: Pyne defends Coalition

Almost anyone could be exposed

- People using products containing PFAS:

- Stain resistance & waterproofing
 - Carpet, clothing, mattresses, upholstery, leather
- Grease- & water-resistance
 - Paper, food wrappers & containers
- Aqueous film forming foam (AFFF)
- Industrial polymers
 - Smooth-flowing products (sunblock, insect repellents, paints, waxes, cosmetics)

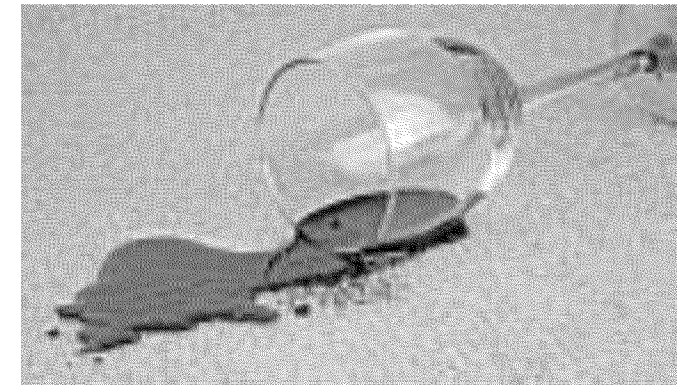
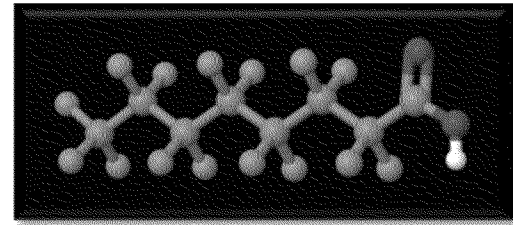


Image courtesy of Mister GC at FreeDigitalPhotos.net

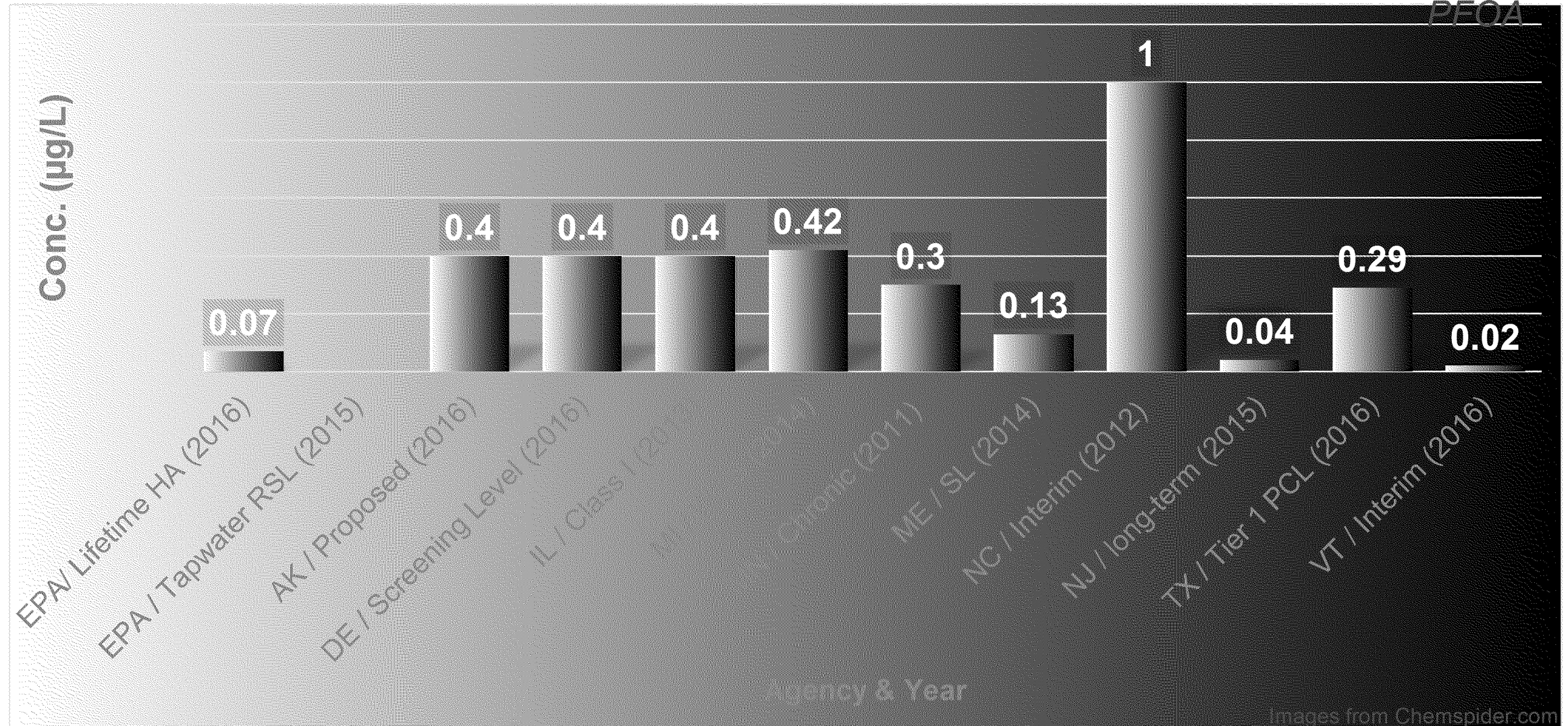


- Ingesting impacted food & water
- Working where PFAS are made or used

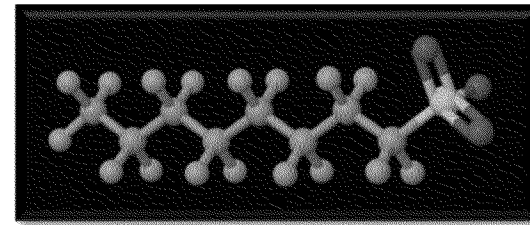




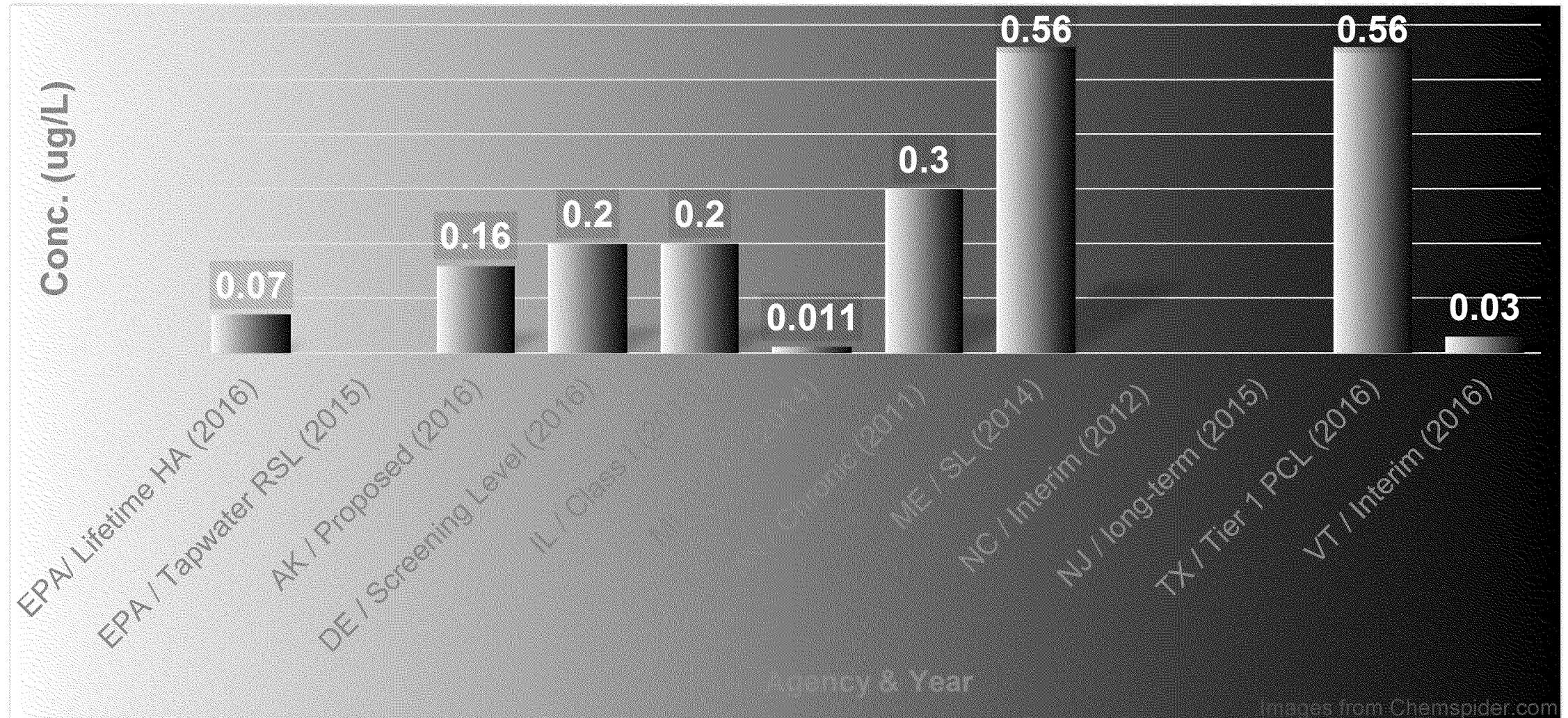
PFOA drinking water SLs are available



PFOS drinking water SLs are available



PFOS



Drinking water screening levels are available for a few other PFAS

Agency or State / Type (Year)	PFAS (µg/L)
EPA / Tapwater Regional Screening Level (2015)	380 (PFBS)
MN / Chronic Health Risk Limit (2011)	7 (PFBA, PFBS)
NJ / Recommended long-term exposure guidance level or MCL (2015)	0.013 (PFNA)
TX / Tier 1 PCL (GW ingestion) (2016)	(see next slide)

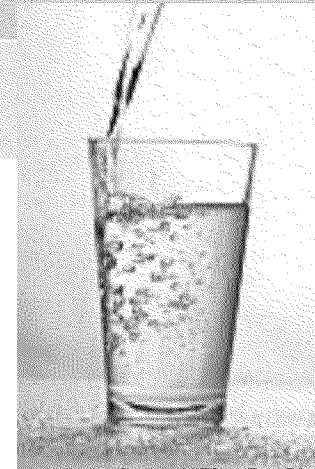
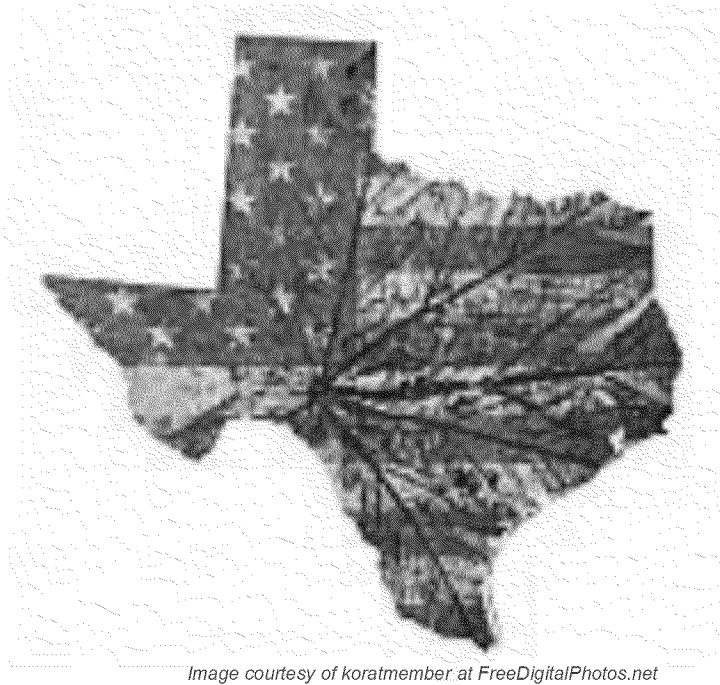
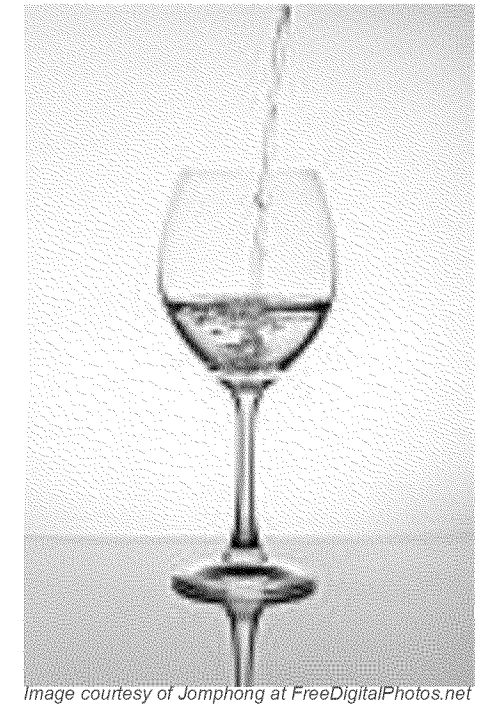


Image courtesy of suphakit73 at FreeDigitalPhotos.net

Everything's bigger in Texas – even PFAS lists!



16 PFAS	$\frac{GW}{GW_{Ing}}$ ($\mu g/L$)
Perfluorooctanoic sulfonic acid (PFOS)	5.6E-01
Perfluoroundecanoic acid (PFUA)	2.9E-01
Perfluoropentanoic acid (PFPA)	9.3E-02
Perfluorohexanoic acid (PFHXA)	9.3E-02
Perfluorododecanoic acid (PFDoA)	2.9E-01
Perfluorooctanoic acid (PFOA)	2.9E-01
Perfluorodecanoic acid (PFDA)	3.7E-01
Perfluorodecane sulfonic acid (PFDS)	2.9E-01
Perfluorohexane sulfonic acid (PFHxS)	9.3E-02
Perfluorobutyric acid (PFBA)	7.1E+01
Perfluorobutane sulfonic acid (PFBS)	3.4E+01
Perfluoroheptanoic acid (PFHpA)	5.6E-01
Perfluorononanoic acid (PFNA)	2.9E-01
Perfluorotetradecanoic acid (PFTeDA)	2.9E-01
Perfluorotridecanoic acid (PFTriDA)	2.9E-01
Perfluorooctane sulfonamide PFOSA	2.9E-01



EPA published Lifetime Health Advisories last week

- Oral RfD - 2×10^{-5} mg/kg-day (developmental toxicity)
- Water ingestion rate - 90th percentile (54 mL/kg-day) - lactating women
- 20% relative source contribution - other sources
- Uncertainty factors of 300 (PFOA) and 30 (PFOS)
 - extrapolation from a LOAEL (PFOA only) - 10
 - extrapolation from animal data (both) - 10
 - variability in the human population (both) - 3
- Lifetime HA = 0.07 µg/L for each
- If both present in drinking water, PFOS + PFOA compared to 0.07 µg/L.

EPA Releases New Health Guidelines for PFOA, PFOS Found in Drinking Water

By TWC News Web Staff
Thursday, May 19, 2016 at 01:46 PM EDT



Lifetime Health Advisories are based on various health effects

- Developmental effects
 - fetuses during pregnancy
 - infants during breast feeding
- Protective of health effects in general population
 - PFOA - testicular & kidney cancer, liver damage, immune effects
 - PFOS - liver damage, other developmental effects, developmental neurotoxicity
- Applicable to both short-term and chronic exposure scenarios.



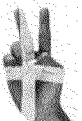






Image courtesy of ddpavumba at FreeDigitalPhotos.net



Image courtesy of Serge Bertasius Photography at FreeDigitalPhotos.net

International drinking water screening levels are available

Country / Type (year) (µg/L)	PFOA	PFOS	Other PFAS
Western Australia / interim screening level (2016) 		0.5	
Canada / drinking water screening value (2016)	0.2	0.6	PFBA, PFBS, PFHxS, PFPeA, PFHxA, PFHpA, PFNA 
 Denmark / health-based criteria (2015); if all 3 present, sum of ratios of conc:SL should be <1.	0.3	0.1	0.1 (PFOSA)
Germany / precautionary value, long-term (2006) 	0.1 (PFOA + PFOS)		
 Netherlands / provisional DW standard (2010)		0.53	
Sweden / maximal tolerable level (2014) 	0.09 (sum of 7 PFAS)		PFHxS, PFBS, PFHpA, PFHxA, PFPeA
 UK / DW quality guideline (2009)	10	0.3	

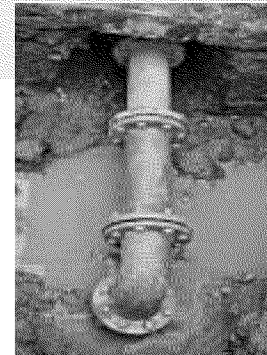
Images courtesy of mapichai, domdeen, PinkBlue, and stockimages at FreeDigitalPhotos.net

There are surface water & sediment screening levels too

Country or State (year)	Exposure Scenario	PFOA	PFOS
SW - ME (2014)	recreational wading & swimming / construction worker contact	0.05 / 0.22	1.2 / 5.3
SW - MI (2014)	non-drinking	12	0.012
SW - MN (2013)	fish consumption	1.6	0.014
SW - W. Australia (2016)	non-potable & recreational uses		5
SW - Netherlands (2010)	fish consumption		0.00065
Sediment – ME (2014)	recreational wading; ingestion & dermal	1.5	20

Note: SW units = $\mu\text{g/L}$, sediment units = mg/kg

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Residential soil screening levels are available

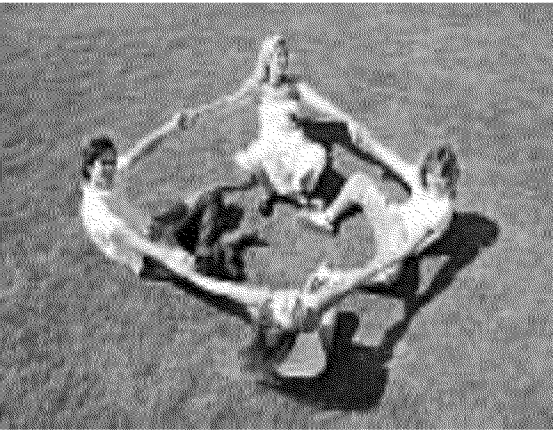
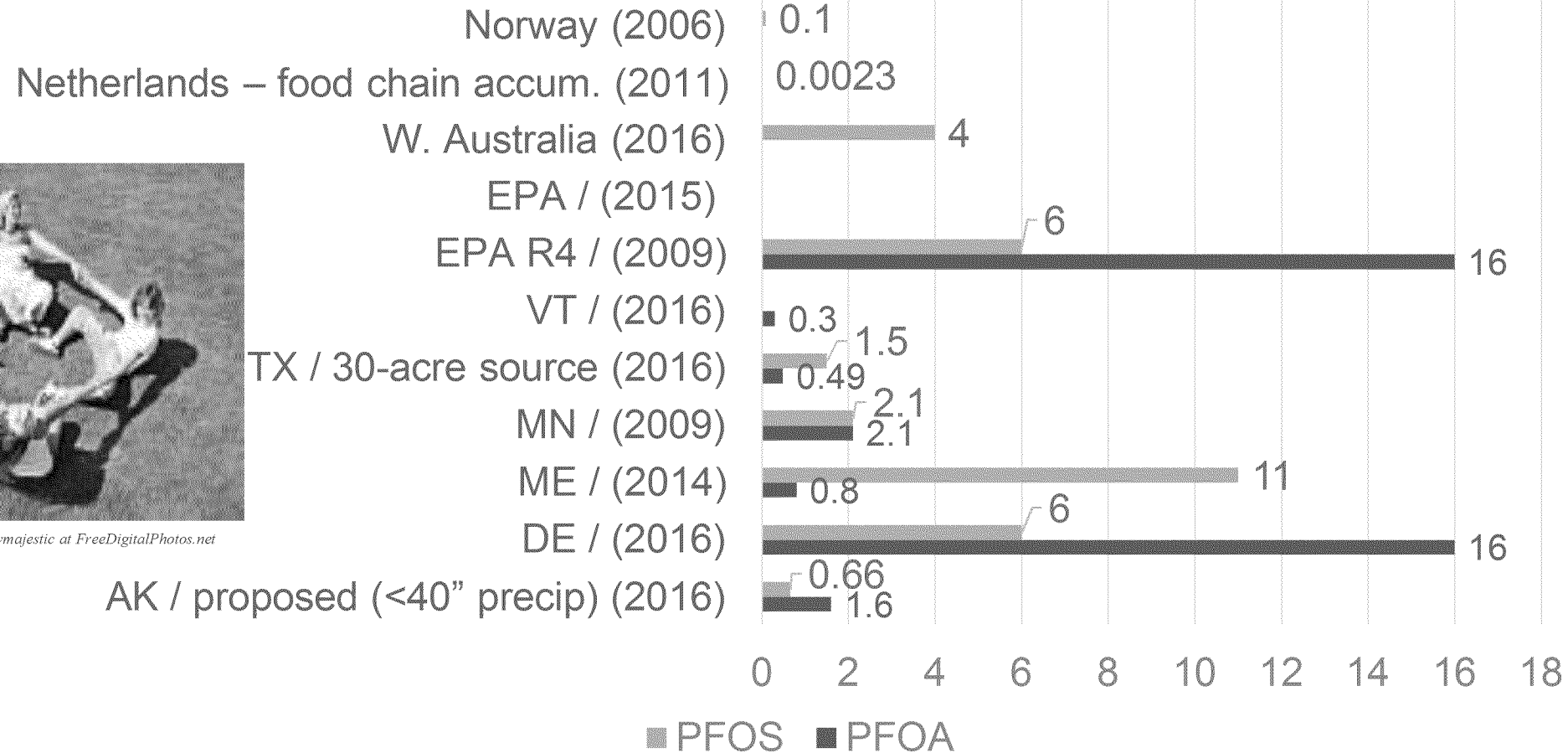


Image courtesy of imagerymajestic at FreeDigitalPhotos.net



Soil screening levels are available for other land uses too

State or Agency/ Type (Year) (mg/kg)	PFOA	PFOS	Other PFAS
ME / park (2014)	1.3	18	
ME / commercial (2014)	6.2	82	
USEPA/ industrial (2015)			23,000 (PFBS)



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GWP soil screening levels are available & low

State (Year) (mg/kg)	PFOA	PFOS	Other PFAS
AK (2016)	0.0011	0.00043	
NC (2015)	1.1		
TX / 30-acre source (2016)	0.0015	0.025	14 others



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Edible fish tissue screening levels are available

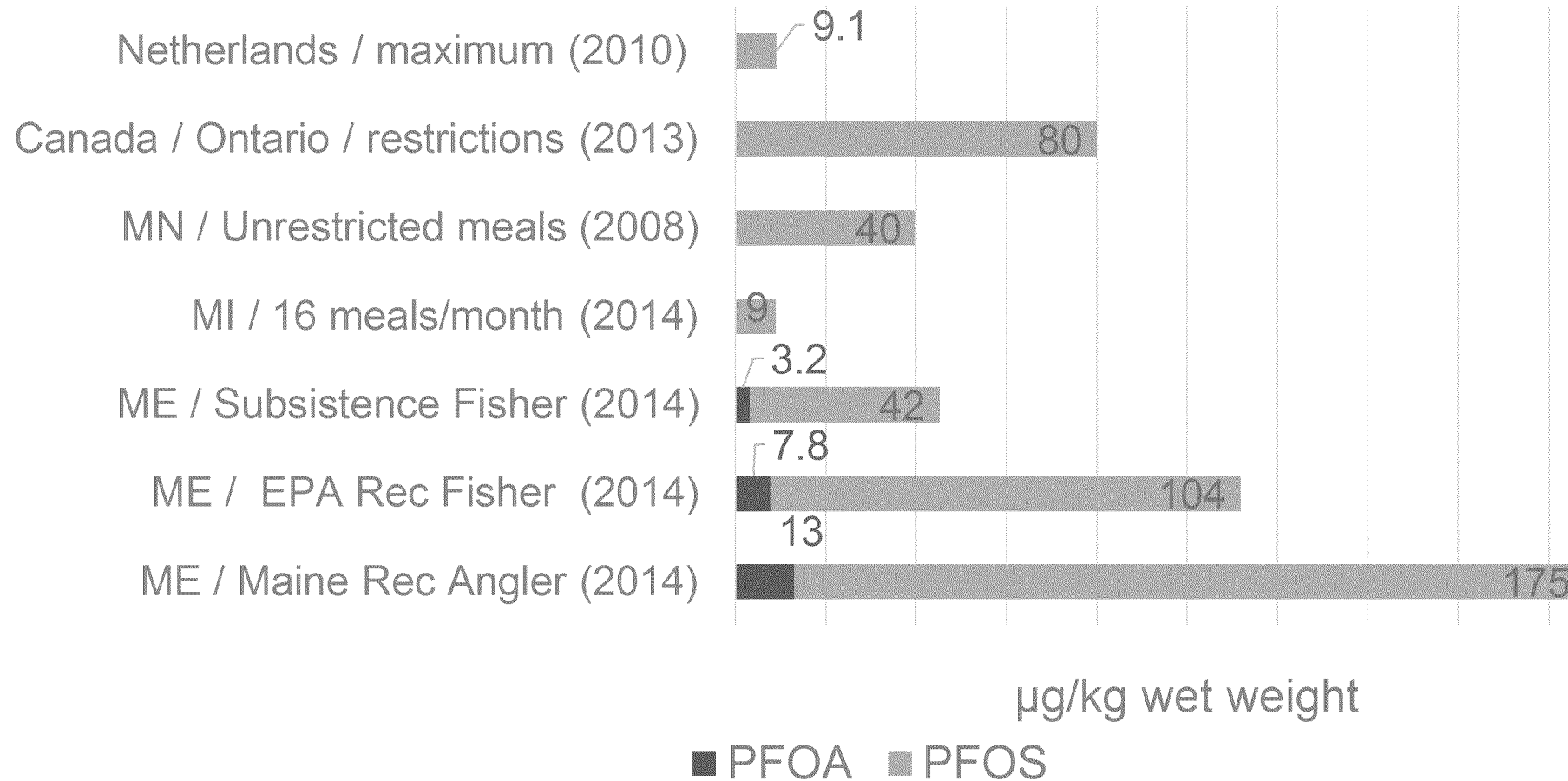


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Fish tissue bioaccumulation factors for PFOS

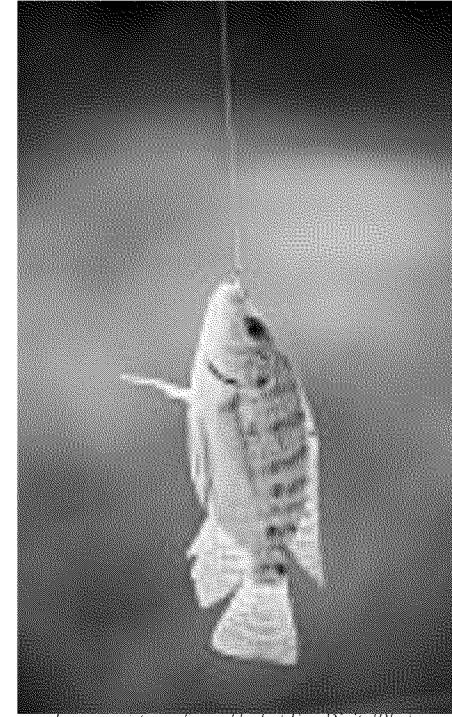
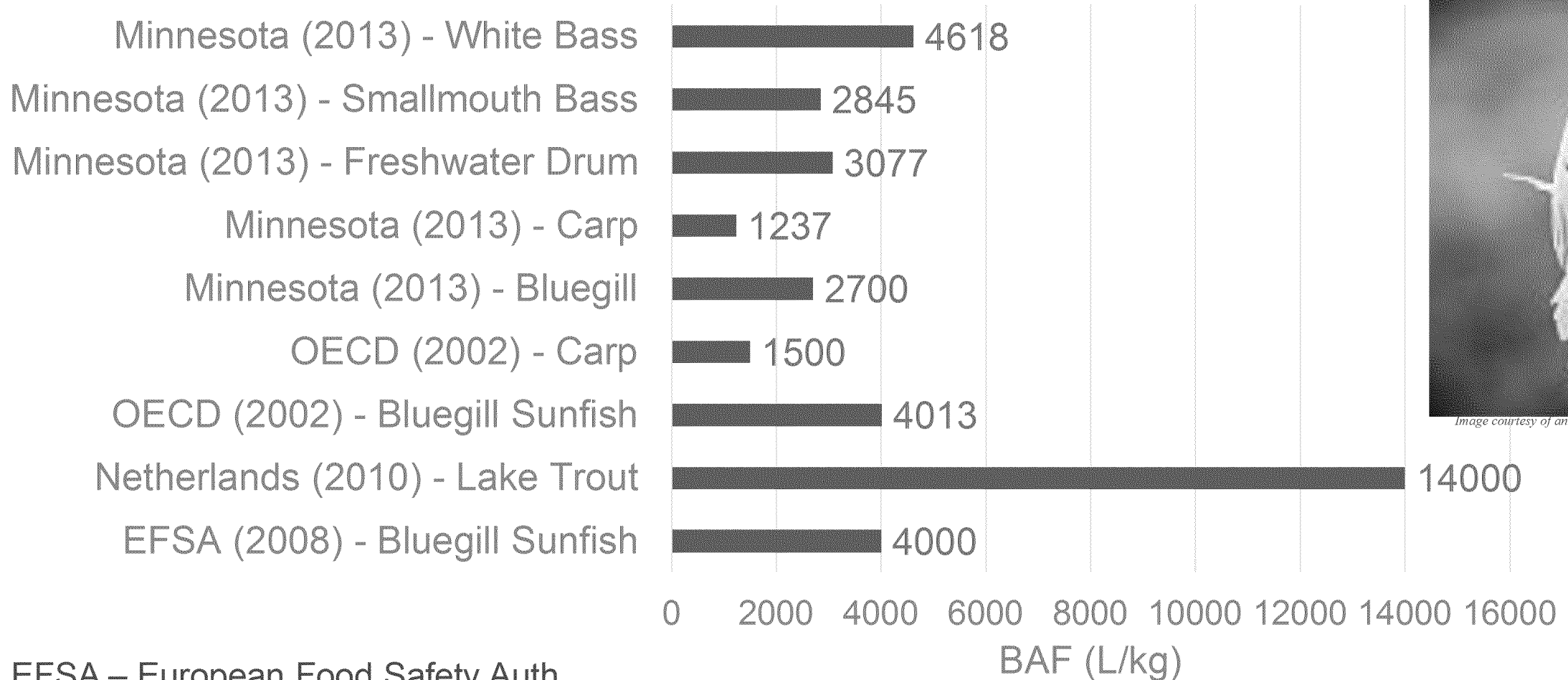
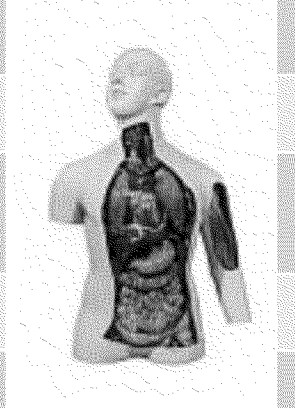


Image courtesy of anankml at FreeDigitalPhotos.net

EFSA – European Food Safety Auth
OECD – Org for Econ Coop & Dvlp

Various chronic oral reference doses are available

Year/Agency (mg/kg-day)	PFOA	Basis	PFOS	Basis	Other PFAS
2014 / USEPA OW / Draft Health Effects Document	2×10^{-5}	Liver, kidney, develop.	3×10^{-5}	Develop. neurotoxicity & liver	
2014 / USEPA/ PPRTV					2×10^{-2} (PFBS)
2009 / USEPA/ subchronic	2×10^{-4}	Develop.	8×10^{-5}	Cholesterol, thyroid,	
2014 / ME	6×10^{-6}	Liver			
2014 / MI / interim			1.4×10^{-5}	Liver, cholesterol, thyroid	
2007 / MN	1.4×10^{-4}	Liver			
2009 / MN			8×10^{-5}	Cholesterol, thyroid	
2008 / MN					2.9×10^{-3} (PFBA)
2015 / ATSDR / Draft intermediate-duration oral MRL	2×10^{-5}	Liver, develop., immune	3×10^{-5}	Liver, develop., immune	

International values are similar (within 1 order of magnitude)

The current cancer classifications are consistent


Year/Agency or State / Document	PFOA / Cancer Classification	PFOS / Cancer classification
2016 / USEPA Lifetime Health Advisory	Suggestive evidence of carcinogenic potential	Suggestive evidence of carcinogenic potential
2014 / USEPA Office of Water / Draft Health Effects Document	CSF = 0.07 (testicular tumors); Suggestive evidence of carcinogenicity	Suggestive evidence of carcinogenic potential
2014 / International Agency on Research on Cancer @ World Health Organization	Group 2B - Possibly carcinogenic to humans	Not evaluated
2011/ EU 	Suspected of causing cancer	Suspected of causing cancer

Image courtesy of Stuart Miles at FreeDigitalPhotos.net

Current status in the Integrated Risk Information System (IRIS)

- No entries for PFAS in IRIS database
- Not currently in draft development
- “Perfluoroalkyl compounds” are on the EPA’s high -priority agenda (Group 1)
- Assessment will begin in the next few years
- Specific PFAS to be included not yet determined



Image courtesy of Simon Howden at FreeDigitalPhotos.net

What do we do in the meantime?

- Monitor agency changes - toxicity information is rapidly evolving
- Consider use of existing screening levels
- Use draft oral toxicity values as Tier 2 or 3 sources
- Consider the potential for additional PFAS besides PFOA & PFOS
- Consider the foodchain pathway where appropriate - bioaccumulation
- Acknowledge uncertainties in exposures, background, toxicity values, health effects

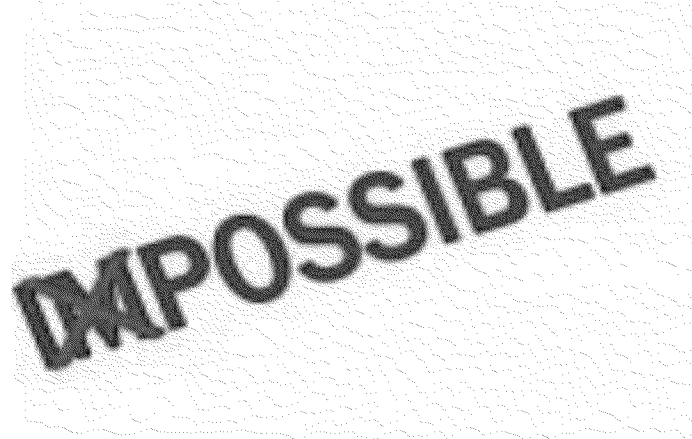
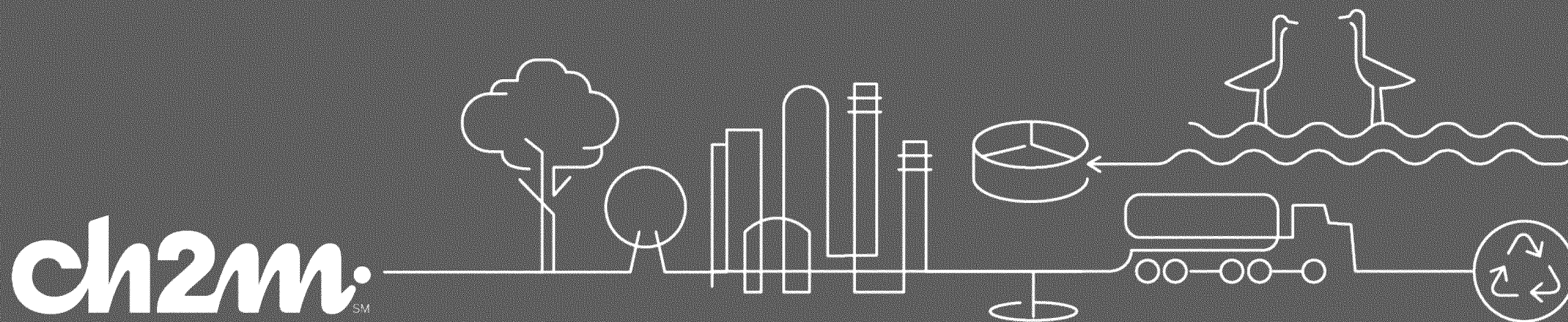


Image courtesy of David Castillo Dominici at FreeDigitalPhotos.net

Thank you!

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Delivering Sustainable Solutions to Complex Local Challenges, Worldwide
Tenth International Conference on Remediation of Chlorinated and Recalcitrant Compounds – Battelle 2016